THE THYROID

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A PHYSIOLOGICAL, PATHOLOGICAL, CLINICAL AND SURGICAL STUDY

BY

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To

GEOFFREY LANGDON KEYNES

and

JOHN EDWARD PIERCY

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PREFACE

"NOTHING is static Change is constant not only in the sequence of life but also in the understanding thereof To accept meekly and to repeat slavishly the time honoured clinical beliefs of the past without re assessment spells retro gression This is nowhere more apparent than in the field of endocrinology in general and thyroid disease in particular '

Aim This book has been written for all who are interested in advancing the understanding of thyroid dysfunction not only as an integral part of the complex endocrine system but also in relation to the whole organism

The physiological pathological clinical and surgical aspects have been given the greatest consideration and there also emerge some new ideas on the embryology and anatomy of the gland

Material The views propounded in this book are drawn from my study of the subject over 25 years supported by a generalised examination of clinical and pathological material from most of the larger London and provincial hospitals and confirmed by a detailed and critical investigation of over 2 000 consecutive thyroidectomies

Inception of the work This research was initiated in 1928 when I was completing a thesis on the function of the thyroid gland for the M A (M Sc) in Physiology and Physiological Chemistry in the laboratories of the late Professor W A Jolly it received further impetus when I studied the embryology and morphological anatomy of the thyroid and cervical appendages in 1930 for part of the M A (M Sc) degree in Anatomy in the department of Professor M R Drennan of the University of Cape Town

Approach It has been the custom for writers on thyroid disease to break down its manifestations into numberless discrete entities rather than to integrate them Here in this book I am endeavouring to show my concept of the whole natural history of thyroid disease in its sequence from life to death—as well of the disease as of its host

The first section (Chap 1 13) introduces this aspect of the natural history of thyroid disease In the next section (Chap 14 27) the clinical manifestations are examined in relation to the natural history The third section collates and crystallises the various means of diagnosis and treatment previously discussed the most modern methods including radioiodine are critically assessed A detailed description of the operative technique embodies a number of illustrated procedures hitherto unrecorded in the literature

In a work of this kind of which by far the greatest part is original it will be mainly the difficult and perplexing problems of thyroid disease that will be examined comparatively little space being given to those on which general agree ment has already been reached

T Levitt Hunterian Lecture Royal College of Surgeons of England 27th March 1952

A neu nomenclature A new classification and nomenclature has been estab lished and used throughout correlating the clinical findings with the macroscopical and microscopical appearances of the diseased gland

Occasionally it has been necessary to coin new words to illumine processes emerging from these studies

Illustrations My experience as a teacher has moved me not only to illustrate profusely every aspect of the subject but by means of many original diagrams and tables to make the arguments immediately understandable and memorable

The panorama of thyroid disease on pages 70 79 will I hope be of help to those intimately concerned with the pathological diagnosis prognosis and treatment They appear to me to give strongest possible support to my theses

Appendices In any discussion of the problems of thyroid disease the names of Riedel and Hashimoto must arise In appendices (pages 541 61) therefore I have been at pains to translate from the German their often misquoted or faultily remembered papers so that a clear recollection of what they meant by their respective disease entities may be available

This new concept of thyroid disease is entirely my own but it must be realised that no work on this scale could be brought to fruition without the most willing co operation

With the resources of the New End Thyroid Clinic as a nucleus I have been able to prosecute investigations and research on the thyroid in a large number of centres in London as well as in Edinburgh and the Provinces

In particular I should like to thank the directors and staffs of the surgical medical and pathological departments of the following hospitals for valuable help in supplying clinical and pathological material Charing Cross Hospital Edinburgh Royal Infirmary the Postgraduate Medical School London Hospital Middlesex Hospital New End Hospital the Royal Cancer Hospital Royal Free Hospital St Bartholomew s Hospital St Thomas s Hospital University College Hospital Westminster Hospital and Whittington Hospital

A long and happy association with Mr G L Keynes and Mr J E Piercy at the New End Thyroid Clinic must have influenced my approach to the surgery of thyroid disease I am grateful for this valuable experience

At the Middlesex Hospital in particular Sir Gordon Gordon Taylor Mr Rupert Vaughan Hudson and Professor S Wright have given continual stimulus inspiration and advice in this work

Facilities were afforded at the Chester Beatty Research Institute by Professor A Haddow for my prosecuting an extensive electron microscopic study of the thyroid gland with the help of M S C Birbeck

At the Mill Hill Medical Research Unit Sir Charles Harington and Mrs R Pitt Rivers gave me the full opportunity of following their most recent advances in the study of the thyroid hormones

The St John s Hospital for Skin Diseases gave me full scope for studying the clinical aspects of collagen diseases and their subsequent correlation with thyroid disease including exophthalmos and the so called pre tibial myxoedema

At the Royal College of Surgeons of England Professor F Wood Jones and *Sir Frank Colyer afforded me the facilities of the large representative* museum for an anthropomorphological study of the orbits of animals and varied dissections of their ocular contents Professors C Causey and R J Last in the department of anatomy Professor G Hadfield and Dr L Proger in the department of pathology and Professor D Slome in the department of physiology have all given me valued facilities for prosecuting studies of the thyroid gland

In Edinburgh Mr L Hartley curator of the Pathology Museum of the Royal College of Surgeons Professor A M Drennan and his staff were particularly helpful as were the Central Pathological Laboratory in London under the direction of Dr A B Bratton and the Wellcome Museum of Medical Science London

Miss Meave Kenny has assisted appreciably My thanks are also due to Drs Raymond Greene H Haber J Linnell E E Pochin Shirley Smith G I M Swyer and the many friends and colleagues who have made this work possible

Drawings Miss J Fairfax Whiteside has shared a great deal in the production of this book by the quality of her drawings

Photography Miss E Mason expertly undertook the major part of the photography and has given much of her time and experience Mr F E Speed has been responsible for the colour photomicrography Mr G W Moore for the photography of the phases on pages 70 77 Mr T C Dodds for the series on pages 408 411 and Mr K Moreman for figures 325 327 Figures 352 356 were lent by the editor of the Glaxo magazine Figures 355 356 have been supplied by Dr R Russell Fraser and figures 352 and 353 by Dr R A J Asher

Statistics Mr M P Curwen in charge of the Department of Statistics at St Bartholomew s Hospital has assessed the statistical significance of the many clinical features of thyroid disease Miss E Dean has assisted in collating the figures and with Miss N Phillips has helped in compiling the index

Owing to re arrangement of the tables quoted on page 51 table II should read table IV and table VI now becomes table XVI Furthermore the most recent work has confirmed that thiouracil inhibits the binding of iodine to tyrosine The legend for figure 4 should now read that the binding of the hormone is diminished by thiouracil (as illustrated) and is not normal

Secretarial Miss G M Ayers has helped in the preparation of the manuscript as well as my sister Miss H Levitt

Finally my deepest thanks to my publishers No author could have been *more fortunate* Both Mr Charles Macmillan and Mr James Parker were always ready to advise and give unfailing support for any project designed to raise the standard of the work

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INTRODUCTION

THE thyroid gland subjected to physiological stress and strain undergoes a pattern of histological change which is faithfully mirrored by the corresponding clinical phenomena These are in full accord with relatively similar changes in the other endocrine organs This orderly pattern usually continues uninterruptedly from birth to death It is disturbed by exciting factors especially in the more vulnerable female organism

The gland reacts to these demands by assuming the histological features of epithelial lymphoid and fibrous change which with the simultaneous aging of the patient are similarly reflected in the corresponding clinical and biochemical alterations

A heterogeneous collection of clinical diseases of the thyroid as well as a relatively large number of apparently unassociated pathological conditions have throughout the years been recorded by various authorities Nevertheless no obvious connecting link or associated factor in this polyglot collection has yet been propounded

The following account of my study of the thyroid gland will I hope reveal this missing link and show that many apparently separate entities are successive stages of a single disease of the toxic thyroid gland

I shall seek to substantiate in the following work the hypothesis that abnormalities of the thyroid gland are not isolated diseases but are phases in an evolving continuum For practical purposes I shall cite six distinct stages which I have named according to their histological characteristics The conclusions based on a detailed study of 2 114 consecutive thyroidectomies have been supported by a searching statistical scrutiny

The patients were investigated clinically before and after operation Their thyroid glands were examined macroscopically as well as microscopically Their clinical histories were analysed from various aspects including those of toxicity exophthalmos lid retraction pre operative and post operative weight changes and post operative hypothyroidism The same procedure applied to a significant number of cases of recurrent goitres confirmed the features of progression both clinically and pathologically

It may well be suggested that unless this evolution of the toxic thyroid gland is studied at various periods in the life of the same patient it cannot be proved that the process of degeneration is continuous in the same gland It is obviously impracticable to subject any one patient to such a series of biopsies but the evidence provided by numerous microscopical examinations of separate cases manifesting conditions in the intervening stages as shown in the photomicrographs in figures 47 94 can leave but little doubt that the process of degeneration is continuous

My hypothesis was formulated and the practical work substantiating it carried out only after an exhaustive study of the international literature The hitherto unorganised data contributed by the great pioneers in this field convinced me that the time is now ripe for a critical reassessment of the views of the past by means of the improved techniques of the present Electron microscopy advanced bio chemical and other tests as well as recent advances in the use of radioactive iodine have helped to define these progressive phases

In an effort to evolve order out of chaos I have found it necessary *inter alia* to try to view in their true perspective the conditions known as lymphadenoid goitre Hashimoto s disease and Riedel s disease These nondescript eponymous terms I have replaced by the names of the last three of my six phases *i e* diffuse lymphoid hyperplasia fibro lymphoid hyperplasia and fibrosis Chronic thyroiditis a true inflammatory phenomenon remains a condition apart

These six phases are only milestones punctuating the uninterrupted path in the continued process of degeneration of the toxic thyroid gland Furthermore different parts of the gland may show different stages of progression These are mirrored accurately by the corresponding changes in the clinical features Never theless it is always possible to assess the dominant phase either from the clinical the macroscopical or the microscopical aspect The data derived from these three approaches are mutually confirmatory

Believing that this approach to thyroid disease will open up further fertile fields of study in allied abnormal conditions I have included such problems as the female sexual cycle cardiovascular phenomena and malignancy as well as their treatment in terms of these six phases

In conclusion I offer as a basis for further research and discussion what I believe to be the solution of this jigsaw puzzle of thyroid disease—the six progres sive phases of the toxic thyroid gland as shown pictorially in figure 2 —

1 Epithelial hyperplasia
2 Lympho epithelial hyperplasia
3 Focal lymphoid hyperplasia
4 Diffuse lymphoid hyperplasia
5 Fibro lymphoid hyperplasia
6 Fibrosis

CHAPTER 1

THE ROLE OF EPITHELIAL, LYMPHOID AND FIBROUS TISSUES

I EMBARKED on this study in order to correlate the changes in the epithelial lymphoid and fibrous tissues of the thyroid gland with the vast array of clinical phenomena When the inflammatory and neoplastic conditions of the thyroid gland were excluded there remained a conglomerate apparently unrelated miscellany of diseases These included among others the classical thyrotoxicosis of Graves lymphoid thyrotoxicosis Warthin s or Graves s constitution lymphadenoid goitre Hashimoto s disease and Riedel s disease All had been reputed generally to be unrelated entities

The American Goiter Association recommended for descriptive purposes the designations toxic and non toxic diffuse and nodular These four categories have helped in a small degree to stabilise the previous indeterminate method of assessment They did not however contribute greatly to the understanding of the aetiology diagnosis prognosis and treatment of the various aspects of thyroid disease

Three Methods of Study

The problem is best approached by correlating three viewpoints (1) the clinical study of the patient combined with (2) the macroscopical assessment of the thyroid gland at operation and (3) the microscopical sections of the gland

Clinical features were studied in a multiplicity of facets and in many instances presented swiftly changing variations of pattern It was felt therefore that the final designation for the disease should be either macroscopical or microscopical

The *macroscopical* appearance of the thyroid was relatively difficult to assess adequately at or after operation The size and surface of the gland as well as its appearance on section did not present any characteristic discriminating feature neither did the colour vascularity or pressure signs produce any clear foundation for basing a nomenclature applicable to all these conditions

Microscopical examination should be made of as many sections of the thyroid as possible since the same gland may present various stages of an identical process Ideally there would be no limit to the number of the sections that would be required From a practical viewpoint I felt after many preliminary trials that three sections carefully selected from different parts of the gland would be adequate The haematoxylin and eosin stain was routinely used and served its

the creation of a National Fund which led to the holding of a National Conference in Calcutta fr December 28 to December 30 In March 1883 a distinguished British Officer Allan Octavian Hume w had resigned his service in 1882 addressed an open letter to the graduates of the Calcutta University inv ting them to form an organization for the mental moral social and political regeneration of the people India—a little army *sui generis* in discipline and equipment This letter exercised a profound influence all enlightened Indians and in response to this sincere call representatives from all over India decided form themselves into a group of provisional committees men from different towns to win others each in h place and to meet later for further consultation These were the forces that ushered into the political aren the Indian National Congress which was destined to win complete independence under the leadership Mahatma Gandhi Words cannot describe the sincerity and indomitable courage of Allan Hume who now known as the Father of the Indian National Congress He was motivated by a sincere conviction th no great empire could have firm foundations without first winning the complete confidence and co operatio of its subjects He placed his untiring services at the disposal of the Indian National Congress, and never faile to warn the British public against all possible misrepresentation suspicion and distress to which the nev organization was naturally exposed

It is obviously not possible to render a detailed account of the history of the Congress which embodiec every possible aspect of our national aspirations In its earlier phase the Congress was merely interested ir asking for greater representation of the Indians in the British Administration in India but as its programm attracted general attention of the masses it began to arouse the suspicion of the British rulers who were now determined to create dissensions amidst its ranks

We may here add a word about the Muslim attitude towards the Congress Sir Saiyad Ahmad (1817 1898) who had established himself as an undisputed leader of the Muslim community in India, believed that Muslim interests could not be safe with the Congress He therefore decided to keep his community away from the Congress and in 1888 even founded the Patriotic Association as a counterblast to the Congress This was followed in 1893 by the Upper India Mohammadan Association This does not imply that all Muslims accepted Sir Saiyad as their leader and left the Congress fold to serve exclusively sectarian interests However the seeds of dissension had been sown, and later under the leadership of Mohammad Ali Jinnah a majority of the Muslims were to form themselves into a political party—the Muslim League

Let us however first complete a general review of the first phase of the national struggle under the guidance of the Indian National Congress

The year 1892 forms a significant critical moment in the history of national independence This was the time when extremism and terrorism raised their ugly head Some of the factors responsible for this outburst of violence were (a) the defeat of Italy by Abyssinia in 1896 and more especially of Russia by Japan in 1905 (b) the attainment of national unification and freedom in Italy under the distinguished leadership of Mazzini Garibaldi and Cavour (c) the irresponsible and repressive acts of the British bureaucracy in India including the partition of Bengal in 1905 and a significant increase in military expenditure Such national calamities as plague and famine were also instrumental in causing universal provocation amongst the suffering masses To crown all British arrogance against Indians in all spheres of social contact and more particularly the humiliating treatment meted out to Indians in Transwal and Natal awakened India into a realization of the imperative need to wrest freedom from foreign rulers

A feeble instalment of reforms announced by the Act of 1892 did not quench the thirst of young Congressites for self determination At this moment Tilak raised his fiery voice to represent national grievances against foreign oppression In view of his outspoken declarations he was charged with inciting violence and

sedition and clapped behind the bars But through his imprisonment he became a martyr in the eyes of the people and *Hind Kesari* his national paper continued to wield an enormous influence on all Indians When in 1905 the Government announced its intention to partition Bengal all patriotic Indians felt rudely shocked to see the British policy of divide and rule reaching its utmost limits The intention of the rulers was obviously to drive a wedge between the two communities and to create a new Mohammadan province in which the Government was to be conducted on the basis of credal difference A protest campaign was launched in August 1905 and it was decided to abstain from purchasing British goods so long as the partition resolution was not withdrawn But in spite of popular verdict against this announcement the British did not budge an inch from their programme of flouting national sentiments

Under the provocation of the British reactionary measures the younger nationalists formed themselves into a revolutionary party under the leadership of Barindra Kumar Ghose younger brother of Aurobindo Ghose and Bhupendra Nath Dutt, the only brother of Vivekananda Through their papers such as *The Sandhya* (The Twilight) and *The Yugantar* (The Transition of Ages) they incited the younger generation to violent methods of seeking redress for the humiliations and wrongs perpetrated upon the Indi n masses Government officers were warned with murders and secret societies were formed to organize armed attacks on important Britons in India The Government on the other hand did not spare any efforts to crush under its iron heel all such revolutionary parties Sardar Ajit Singh and Lala Lajpat Rai were deported to Mandalay and the Seditious Meetings Act was passed on 1st November 1907 to further curtail freedom of speech and association

It is here proper to pay tribute to those Indians who were sent into exile by the British authorities or those who voluntarily left their Motherland to seek employment and freedom in alien countries

Most of these Indians abroad were treated as pariahs in foreign countries but they could not return to their homeland which they had left in quest of employment During the early years of the 20th century the Canadian Government was in bad need of cheap labour for its timber mills and other development scheme Since the terms offered were lucrative many thousands of Indians mostly Punjabis offered their services as manual labourers in Canada and America When the influx of these immigrants became continuous the Canadian Government began to impose restrictions on further inflow of Indians But those who already found themselves on foreign soils took advantage of their freedom to organize themselves into a political organization to support the cause of national struggle at home It was as a result of these efforts that Lala Hardayal and other Indians in America and Canada started a political party named Gadar Party with the object of fomenting an armed revolution in India to throw off the foreign yoke Lala Hardayal and Bhai Parmanand who were in America during this period became the pioneers of this revolutionary party Soon after branches of the Gadar Party sprang up all over America and Canada When the First World War was about to start it decided to break into an open rebellion Mr Kartar Singh Sarabha Pandit Jagat Ram Harianvi Babu Tarak Nath Dass V G Pingley Khan Khoji and many other Indians offered their services ungrudgingly in the cause of national independence In California Baba Jawala Singh Bhai Sobha Singh and Baba Rur Singh undertook to recruit more volunteers and raise funds for the Gadar Party In June 1913 representatives from various parts of America met at Sacraments the Capital of California At this meeting Lala Hardayal gave the clarion call for the national struggle and resolved to start a paper called *The Hindusthan Gadar* under his editorial guidance The paper fiercely exposed the anti Indian policies of the American and Canadian Governments and won many a sympathetic supporter for the cause of Indian independence As a result of these revolutionary activities Lala Hardayal was arrested in March 1914 but was later released on a thousand dollars bail Fearing that he may not be handed over to the Indian Government as a political agitator the leading members of the Gadar Party advised him to

escape to Switzerland When the War started the Gadar Party was only nine months old and had not ye been properly organized in Malaya, Singapore and other Far Eastern Countries Yet in spite of all Govern ment restrictions on their movements, hundreds of Indians abroad armed with unimpeachable nationa fervour sailed for India on a Japanese ship called *Tosa Maru* But in India they were betrayed by one o their compatriots Sardar Kirpal Singh who disclosed all secret information to the Indian Government

During the period under review quite a large number of Indian students had joined the European Uni versities The racial arrogance of the English the colour bar and a number of other factors were responsibl for urging their minds to continue the struggle for the liberation of their motherland A number of secre societies were started to publish propaganda literature on behalf of Indian Independence Movement and dis tributed in different Western Countries Krishanji Verma was the founder of the secret society in Englanc and he voiced the feelings of resurgent India in many pamphlets He was joined by Madam Cama, Parsee lady from India Ranaji of Jamnagar State and Shri V D Savarkar who published his famous bool *Th War of Independence* while he was a student in London In 1907 Mr Madan Lal Dhingra, a student fron Amritsar shot dead Curzon Wyllie for spying over the Indian students He mounted to the gallows with a smile on his face while V D Savarkar together with his co revolutionaries escaped to France

After the failure in 1921 of the non co operation movement India was all agog with revolutionary zea which was spreading like wild fire all over the country In 1924 Gopi Nath Saha was hanged in Calcutta anc in the Punjab a militant group of Babbar Akalis broke into revolutionary activities Six of them ascendec the scaffold while others were killed in course of clashes with the forces of the Government Shri Ran Raju from Andhra an ex non co operator had organized an armed following to fight the regular military forces against whom he waged a war for over two years until he was shot in an encounter In the U P the revolutionaries raided Government Treasury and through other violent activities struck terror into the minds of the British The later revolutionary activities of S Bhagat Singh and Chandra Sekhar Azad are house hold legends now The story of the Chittagong rebels is equally well known Three District Magistrates of Midnapore and several other high Government Officers were killed Similar attempts were made on the life of the Editor of the *Statesman* the Police Commissioner Sir Charles Tegart and the President of the European Association A Bengal graduate Miss Bina Devi was sentenced to 10 years for shooting at the Provincial Governor Such in brief is the story of the inspiring deeds of the Indian revolutionaries who remained a running sore for the British Government It is an exciting story of indomitable courage and selfless sacrifice Hundreds and thousands of India s youth mounted the gallows with a smile on their faces or died in obscurity—many of them in foreign lands But can their glory ever fade into nothingness?

They shall not grow old as we that
are left grow old,
Age shall not weary them
nor the years condemn
At the going down of the sun and in the morning
We shall remember them

It is not possible to follow in detail the undaunted campaign of the Indian patriots who fought and lost their lives in the cause of their motherland Wherever they went they carried the torch of freedom with them and never wavered or shrank in the face of repressive government measures

India was burning with violent zeal in the second decade of the twentieth century when Mahatma Gandhi appeared on the scene to lead India s destiny He injected into the patriots a sense of responsibility

sobriety and provoked them into dispassionate analysis Eventually this wizard brought about unprecedented national awakening and earned the sobriquet of the Mahatma He was destined to command the Indian political stage till independence

The all India agitation against the Rowlatt Acts created the atmosphere for Mahatma Gandhi's inevitable leadership in 1919 These Acts attempted to perpetuate the extraordinary repressive powers conferred upon the Government during the War for disregarding normal legal procedure and enforcing imprisonment without trial Gandhiji launched a passive resistance movement in protest against these acts and thereafter followed an avalanche of mass demonstrations and strikes everywhere

But before we attempt to evaluate Mahatma Gandhi s earliest contribution to the Indian National politics, it should be interesting to recall Pandit Jawaharlal Nehru s description of this saint statesman who amidst violence and bloodshed pointed towards different horizons and spoke a language that many could not comprehend at that moment To quote Nehru He also joined his voice to the universal outcry But this voice was some how different from the others It was quiet and low and yet it could be heard above the shouting of the multitude it was soft and gentle and yet there seemed to be steel hidden away somewhere in it it was courteous and full of appeal and yet there was something grim and frightening in it every word was full of meaning and seemed to carry a deadly earnestness Behind the language of peace and friendship there was power and the quivering shadow of action and a determination not to submit to a wrong We are familiar with that voice now, But it was new to us in February and March 1919 we did not quite know what to make of it but we were thrilled This was something very different from our noisy politics of condemnation and nothing else long speeches always ending in the same futile and ineffective resolutions of protest which nobody took very seriously This was the politics of action not of talk

Under Mahatma Gandhi s leadership the popular agitation swelled into larger dimensions and there was not a soul in India who did not respond to his call for sacrifice India demonstrated her national disgust over the Government Acts through her observance of Satyagraha all India hartals and complete suspension of business The Government retaliated by resorting to brutality and indiscriminate atrocities on the unarmed and the innocent The ugliest mark on the record of British Government in India would always be the ruthless firing at Jallianwalla Bagh Amritsar under the orders of General Dyer who later on became a symbol of British callousness and beastly inhumanity against the Indians His troops fired 1 600 rounds of ammunition into the peaceful crowd which had no means of escape Even according to official data of information 379 persons were massacred in cold blood with 1 200 wounded lying uncared for on the blood stained lawns of Jallianwala Bagh with hungry vultures casting their ominous shadows overhead Martial Law was clamped on the Punjab and the subsequent course of events shows a series of gruesome hangings mass killing aerial bombardments while the courts in India rained death on non violent political agitators His Royal Highness the Duke of Connaught, who inaugurated the 1919 Reforms rightly observed The shadow of Amritsar has lengthened over the face of fair India No one can deplore those events more intensely than I do myself As an old friend of India I appeal to you all British and Indians to bury along with the dead past the mistakes and misunderstandings of the past to forgive where you ought to forgive and to join hands and to work together to realize the hopes that rise from today

But whereas India in consonance with her illustrious traditions of forgiveness extended her hand of friendship towards the British the rulers once again failed to grasp it The hope that the Duke of Connaught had faintly aroused were dashed to the ground But this time the Congressites were not alone because embittered by the part played by the Britons in the defeat of Turkey and the dismemberment of the Turkish Empire in the First World War thousands of Muslims now joined the Congress fold The defeat of and dishonour to Turkey had hurt profoundly the religious and historical sentiments of the Muslims and

provoked them into adopting an aggressive anti British attitude The two Ali Brothers, Mohammed Ali and Shaukat Ali and Maulana Abul Kalam Azad launched a mass Muslim movement known as the Khilafat movement

Meanwhile great discontent prevailed also among the industrial workers particularly of the Bombay Mills who went on strike at the beginning of 1919 for over six months

The atmosphere already heavy with Government atrocities in the Punjab was fully charged when the Khilafat ... Mahatma Gandhi saw in the Khilafat movement an opportunity of ... Muslims as would not arise in a hundred years His whole hearted support for the ... brought about an unprecedented fraternisation between the Hindus and the Muslims ... between the two rival communities released powerful political energies The popular ... so great that nearly two thirds of the voters abstained from participating in the elections to the ... held in 1920 and an enormous number of students left their institutions to take active ... the ... against foreign rule It was at this moment that two distinguished lawyers Deshbandhu C R Das and Pandit Motilal Nehru gave up their practices to become selfless crusaders in the ... non co operation The masses demonstrated their support by publicly throwing English clothes ... the flame rose higher the British saw in the amber colour of the flames a symbol of the ... fight till complete independence was won from the British rulers Imprisonment ... of honour proudly displayed by those who had been to the temples of the Indian national ... The British Government brought the Prince of Wales to India in the hope of ... loyalty for the British throne but they soon realized the futility of these designs ... Prince touched the Indian shores he was greeted with a hartal all over India

... 1921 will always be recorded as historic in the struggle for national independence It was ... annual session at Ahmedabad that year that the Congress announced its firm determination to ... the programme of non co operation A wave of civil disobedience ran over the entire ... length and breadth of India and the masses expected another dramatic performance to be staged on the political platform on an all India scale Gandhiji however decided to circumscribe the civil disobedience ... district of 7000 people But even this course had to be abandoned as indiscriminate ... violence broke out at Chauri Chaura a small village near Gorakhpur in U P where a Police Station was set on fire and 22 policemen massacred in cold blood Gandhiji was greatly disillusioned to see his ideals distorted into an ugly shape and he was forced to call a halt to the movement Nevertheless he was arrested tried and placed under six years sentence Although Gandhiji was discouraged by the unexpected course of events he declared I knew that I was playing with fire I ran the risk and if I were set free I would still do the same One of the important items on the non co operation programme was complete boycott of the legislature But with the discontinuance of the movement after Chauri Chaura this policy was reorientated under the leadership of Motilal Nehru and C R Das These two veteran statesmen formed the Swarajya Party and contested the elections to the Councils with a view to wreckin reform from within by uniform consistent and continuous obstruction But in spite of ... ble success this policy did not achieve any tangible results

On the other hand the suspension of the mass movement had an adverse effect on the relationship between the Hindus and the Muslims A vacuum was created ... concrete programme to fill it Nor was there a common ... communities together and keep their minds bent on a united ... itself into a secularist State under the enlightened guidance of Mustafa Kemal ... This naturally resulted in leaving the Khilafat movement without any ideal to pursue In the ... other dissensions arose between the Hindus and the Muslims the intervening gulf yawned



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The atmosphe already heavy with Government atrocitie in the Punjab was fully charged when the Khilafat [illegible] Gandhi saw in the Khilafat movement an opportunity of union of Hindus and Muslims [illegible] hundred years His whole hearted support for the Khilafat [illegible] fraternisation between the Hindus and the Muslims [illegible] communities released powerful political energies The popular [illegible] the voters abstained from participating in the elections to the [illegible] enormous number of students left their institutions to take active [illegible] rule It was at this moment that two distinguished lawyers [illegible] Nehru gave up their practices to become selfless crusaders in the [illegible] demonstrated their support by publicly throwing English clothes [illegible] the British saw in the amber colour of the flames a symbol of the [illegible] until complete independence was won from the British rulers Imprisonment [illegible] displayed by tho e who had been to the temples of the Indian national [illegible] The British Government brought the Prince of Wales to India in the hope of [illegible] loyalty for the British throne but they soon realized the futility of these designs be [illegible] Prince touched the Indian shores he was greeted with a hartal all over India

[illegible] 1921 [illegible] be recorded as historic in the struggle for national independence It was [illegible] annual session at Ahmedabad that year that the Congress announced its firm determination to [illegible] programme of non co operation A wave of civil disobedience ran over the entire [illegible] breadth of India and the masses expected another dramatic performance to be staged on the [illegible] India scale Gandhiji however decided to circumscribe the civil disobedience [illegible] small district of [illegible] 000 people But even this course had to be abandoned as indiscriminate [illegible] violence broke out at Chauri Chaura a small village near Gorakhpur in U P where a Police Station was set on fire and 22 policemen massacred in cold blood Gandhiji was greatly disillusioned to see his ideals distorted into an ugly shape and he was forced to call a halt to the movement Neverthele s he was arrested tried and placed under six year sentence Although Gandhiji was discouraged by the unexpected course of events he declared I knew that I was playing with fire I ran the risk and if were s free I would still do the same One of the important items on the non co operation programme was complete boycott of the legislature But with the discontinuance of the movement after Chauri Chaura this policy was reorientated under the leadership of Motilal Nehru and C R Das These two veteran statesmen formed the Swarajya Party and contested the elections to the Councils with a view to seeking reform from within by uniform consistent and continuous obstruction But in spite of [illegible] creditable success the policy did not achieve any tangible result

On the other hand the suspension of the mass movement had an adverse effect on the relationship between the Hindus and the Muslims A vacuum was created with no concrete programme to fill it Nor was there a common platform [illegible] communities together and keep their minds bent on a united [illegible] Turkey [illegible] itself into a secular State under the enlightened guidance of Mustafa Kemal [illegible] This naturally resulted in leaving the Khilafat movement without any ideal to pursue In the circumstances other dissensions arose between the Hindus and the Muslims the intervening gulf yawned



wider to throw the two communities apart from each other Into the chasm jumped the British ruler whose astute political sagacity seized the opportunity to sow discord between the two communities As the tempers ran high and the fire of communalism began to crackle with mutual antagonism riots broke out in mad fury and cast an ominous shadow over the fair record of the Khilafat days The Muslim League grew in power and excited the passions of the Muslims to fight for their solidarity against Hindu domination For a moment the Congress felt betrayed but then under the leadership of Mahatma Gandhi it continued with still greater vigour, to espouse the cause of uncompromising nationalism But there had been defections from the Congress fold most of the Khilafat leaders joined the opposite ranks and swelled the number of the Muslim League Party The Congress was left with no other option except to rally under its banner the remaining Muslim nationalists as a counterblast to the League precisely in the manner of the British Government which was always pitching the Moderates against the Extremists But these efforts did not bear any tangible results in the face of the Muslim League s growing popularity with the Muslim masses

For a moment a ray of hope appeared on the horizon in the form of a common danger to all Indians As all the seven members of the Simon Commission were British it was unanimously boycotted by the Congressites the Liberal and significant sections of the Muslim Community when it landed in Bombay on 3rd February 1928 The Congressites attacked the recommendations of the Commission on wider grounds than those of others They argued that it did not accord with the principle of self determination to have constitutional changes effected on the report of a Commission appointed by an outside authority The Commission was therefore greeted with black flags at all public places thus manifesting the complete distrust of the Indians in its objectives It was in the course of nation wide agitation against the Commission that Lala Lajpat Rai the lion of the Punjab received bruises from a lathi charge inflicted upon the demonstrators outside the Lahore Railway Station It was as a result of these injuries that the indomitable veteran from the Punjab finally succumbed to death

Whereas the Commission fought shy of even conceding the demand for Dominion Status the Congress under the leadership of Pandit Jawaharlal Nehru declared its final goal to be nothing less than complete independence The real thing is the conquest of power observed Nehru by whatever name it may be called I do not think that any form of Dominion Status applicable to India will give us real power A test of this power would be the entire withdrawal of the alien army of occupation and economic control Let us therefore concentrate on these and the rest will follow In the meantime Mr Mohammad Ali Jinnah who had so far been an ardent supporter of the Congress cause left the nationalist fold to demand exclusive rights and privileges for the Muslims It was at this critical juncture that he issued a manifesto comprising the famous fourteen points in which he formulated the basis of the separate identity of the Muslims as a national unit The Congress bent doggedly on its nationalist ideals refused to compromise its stand by recognising these sectarian demands of Mr Jinnah The British Government on the other hand seemed adamant not to show any quarter to the nationalists Choosing a middle course between the futile Simon Commission and the uncompromising Congress Lord Irwin the then Viceroy announced that the natural issue of India s constitutional progress was the attainment of Dominion Status He also announced that a Round Table Conference of all Indian political parties would be held in London to discuss the report of the Simon Commission The Congress however instantaneously declared complete independence as its goal and decided to boycott the Legislature and the Round Table Conference and explored avenues to start a campaign of civil disobedience On the midnight of the 31st December 1929 Pandit Jawaharlal Nehru the President elect of the Congress unfurled the National Flag of India on the banks of the River Ravi followed by enthusiastic celebrations of Independence Day on the 26th January 1930 all over India when all patriotic Indians took an oath to stake their utmost at the altar of liberty from Foreign Rule

This day on which the celebrations were repeated from year to year became a day of heart searching and solemn pledges all over the country

Gandhiji launched his movement of Civil Disobedience on April 6 1930 with his historic march to Dandi in Western India to make salt on the sea shore in complete disregard of the State Law Regulations This was the trumpet call for sudden outburst of national excitement on a mammoth scale involving national strikes outbreaks of violence such as the armoury raid in Chittagong the establishment of parallel governments in several places and the complete boycott of British goods According to Government records there were no less than 29 cases of indiscriminate firing involving a toll of 103 killed, 420 injured and 60 000 thrown behind prison bars Touching the lowest level of inhuman brutality the troops and policemen indulged in indiscriminate and ruthless beating of men and women to curb the national sentiments of resurgent Indian When the national movement proved too strong for the British Government they diplomatically [illegible] adopt more conciliatary measures The Round Table Conference which met in November [illegible] adjourned on 2nd January 1931 because of the complete non co operation of the C[illegible] after the signing of the famous Gandhi Irwin Agreement on 4th March [illegible] consented to discontinue Civil Disobedience and participate in the second Round [illegible] the Government withdrew its repressive ordinances and opened the prison gates to rele[illegible] all political prisoners except those who had been found guilty of violence

At the Round Table Conference as the chosen representative of the teeming millions of India Ma[illegible] Gandhi voiced the feelings of his motherland in these historic words I am here very re[illegible]fully to claim on behalf of the Congress, complete control over the defence forces and over foreign affairs He added that India could not be held by the sword as repeatedly claimed by the British rulers but it would be a rebellious disgruntled and inflamable India which could at any time rise on her feet to shatter the shackles of slavery But the communal issues still hung fire and proved to be an insurmountable barrier There was no possibility of bridging the gulf between the Hindus and Muslims Taking advantage of the situation Mr Ramsay MacDonald, the Prime Minister of Britain announced his famous Communal Award which worsened the communal situation by increasing multiplication of minorities When Gandhiji returned to the Indian shores in December 1931 he found the Government again entrenched in repressive measures Provoked by the Viceroy s refusal to grant Mahatmaji an interview the Congress Working Committee on 1st January 1932 passed unanimously a resolution for the resumption of Civil Disobedience and the boycott of British goods Three days later Gandhiji was arrested and the Government declared the Congress Organization to be an illegal body and passed a further instalment of repressive Ordinances These Ordinances were challenged by the masses and the Government riding rough shod over the feelings of the Indians adopted a dictatorial attitude towards the national movement According to official record more than 1 20 000 persons were rounded up by the police and there followed gruesome scenes of wholesale violence physical outrages shooting and beating up punitive expeditions collective fines on villages and seizure of lands and property of villagers

It was at this critical moment that the British Government once again attempted to divert national zeal by announcing some fresh constitutional proposals The Act of 1935 was a clever devise to hoodwink Indian national aspirations In the words of a contemporary historian A Joint Select Committee of the two Houses of Parliament under the Chairmanship of Lord Linlithgow incubated the egg of the White Paper—which comprised only the white and empty shell without the living yolk of Dominion Status—and hatched a Bill which became the Government of India Act of 1935 when it received the Royal assent on 4th August 1935 It was tenaciously resisted at each stage by the right wing Conservatives led by Mr Churchill in the House of Commons and Lord Salisbury in the Lords This monster child of the Mother

Parliament so reluctantly born and brought into the light of day by a Caesarean operation was characterised by Jawaharlal Nehru as A New Charter of Slavery His shrewed political wisdom enabled him to remark It would be a fatal error for the Congress to accept office That would inevitably involve co operation with British Imperialism This strong criticism of the Act might today seem to be a little too radical but let it be remembered that the British Government in its criminal haste had not even shown a generous gesture to include the phrase Dominion Status in the texts of the Act Couched in such soft phrases a gradual development and progressive realization it failed to attract any serious attention of the Congress Dyarchy which had failed in the Provinces was to be foisted under this Act on the centre The Act visualised a federation of autonomous British Indian Provinces together with Indian States if and when at least 50 per cent of the latter willingly acceded The Central Government was to be securely invested with reserved and transferred compartments with an interminable array of Special Re ponsibilities Reservations Overriding Powers and Safeguards vested in the Governor General The Provincial Governors were endowed with similar powers to use their discretion whenever necessary The Provincial part of the 1935 Act came into force on 1st April 1937 Once again the Congress resolved as in 1922 to accept the challenge and try the reforms envisaged by the Act Like a Colossus the Congress defeated all opposition and swept the polls in seven Provinces Bombay Madras U P Bihar C P Orissa and N W F P In 1938 Coalitions were formed in Assam and Sind leaving only Bengal and the Punjab to the Muslim party But soon a rift occurred in the Congress fold with the inception of a left wing party inside the Congress ranks under the leadership of Subhas Chandra Bose who even defeated Gandhiji s nominee for the Presidentship When the more moderate members of the Congress compelled Subhas Bose to resign he launched a new political party called the Forward Bloc and this open schism inevitably debilitated the strength and prestige of the Congress

The Congress Ministries however harnessed their efforts towards ameliorating the lot of the common masses by introducing innumerable social and economic reforms A mass contact movement was initiated to attract Muslims to join the Congress fold But this failed to win any response from Mohammad Ali Jinnah who had by now established himself as the invulnerable leader of the entire Muslim Community When the Congress proposed that the possibility of a home made Constitution through a Constituent Assembly should be explored Mohammad Ali Jinnah jeered at it as a packed body manoeuvred and managed by a Congress caucus As months rolled by the distance between the two political parties became wider and Mohammad Ali Jinnah began to make a more frequent use of virulent and irresponsible language In one of his speeches he accused the Congress of being a fascist body determined to impose a reign of terror on the minority regardless of any humane considerations The Muslims think that no tyranny can be as great as the tyranny of the majority remarked the Muslim Leader, but the saner elements everywhere saw that power had wormed into his brain and he was dreaming of a separate Muslim State with himself as its inalienable chief When Hitler declared War against the allies in September 1939 the Congress Ministries resigned because they could not allow themselves to be used as stooges in the hands of the British Government in the War between two Power Blocs Mr Jinnah hailed the resignation of the Congress Ministries as national deliverence from a reign of injustice and nepotism

The Congress refused to be drawn into idle controversies and displayed maturer political perception in preserving its energies for only the essential issues It had accepted office not to cool its heels but to prove its earnest desire to better the conditions of the poor masses However when the War broke out India found herself in an embarrassing situation The Congress refused to toe the British line and declared openly We are asked to fight not because we choose to fight but because England wants us to fight—co operation must be between equals by mutual consent for a cause which both considered to be

This day, on which the celebrations were repeated from year to year, became a day of heart searching and solemn pledges all over the country.

Gandhiji launched his movement of Civil Disobedience on April 6, 1930 with his historic march to *Dandi in Western India to make salt on the sea shore in complete disregard of the State Law Regulations.* This was the trumpet call for sudden outburst of national excitement on a mammoth scale involving national strikes, outbreak of violence such as the armoury raid in Chittagong, the establishment of parallel governments in several places and the complete boycott of British goods. According to Government records there were no less than 29 cases of indiscriminate firing involving a toll of 103 killed, 420 injured and 60,000 thrown behind prison bars. Touching the lowest level of inhuman brutality, the troops and policemen indulged in indiscriminate and ruthless beating of men and women to curb the national sentiments of resurgent Indians. When the national movement proved too strong for the British Government, they dipl[illegible] adopt more conciliatory measures. The Round Table Conference which met in November [illegible] adjourned on 2nd January 1931 because of the complete non co-operation of the Congress. It [illegible] after the signing of the famous Gandhi Irwin Agreement on 4th March [illegible] consented to discontinue Civil Disobedience and participate in the second Round [illegible] the Government withdrew its repressive ordinances and opened the prison gates to [illegible] all political *prisoners except those who had been found guilty of violence.*

At the Round Table Conference, as the chosen representative of the teeming millions of India, Mahatma Gandhi voiced the feelings of his motherland in these historic words: "I am here very respectfully to claim on behalf of the Congress complete control over the defence forces and over foreign affairs." He added that India could not be held by the sword as repeatedly claimed by the British rulers, but it would be a rebellious, disgruntled and inflamable India which could at any time rise on her feet to shatter the shackles of slavery. But the communal issues still hung fire and proved to be an insurmountable barrier. There was no possibility of bridging the gulf between the Hindus and Muslims. Taking advantage *of the situation, Mr Ramsay MacDonald, the Prime Minister of Britain, announced his* famous Communal Award which worsened the communal situation by increasing multiplication of minorities. When Gandhiji returned to the Indian shores in December 1931, he found the Government again entrenched in repressive measures. Provoked by the Viceroy's refusal to grant Mahatmaji an interview, the Congress Working Committee on 1st January 1932 passed unanimously a resolution for the resumption of Civil Disobedience and the boycott of British goods. Three days later Gandhiji was arrested and the Government declared the Congress Organization to be an illegal body and passed a further instalment of repressive Ordinances. These Ordinances were challenged by the masses and the Government, riding rough-shod over the feelings of the Indians, adopted a dictatorial attitude towards the national movement. According to *official records more than 1,20,000 persons* were rounded up by the police and there followed gruesome scenes of wholesale violence, physical outrages, shooting and beating up, punitive expeditions, collective fines on villages and seizure of lands and property of villagers.

It was at this critical moment that the British Government once again attempted to divert national zeal by announcing some fresh constitutional proposals. The Act of 1935 was a clever devise to hoodwink Indian national aspirations. In the words of a contemporary historian: "A Joint Select Committee of the two Houses of Parliament under the Chairmanship of Lord Linlithgow incubated the egg of the White Paper—which comprised only the white and empty shell without the living yolk of Dominion Status—and hatched a Bill which became the Government of India Act of 1935 when *it received the Royal assent on* 4th August 1935. It was tenaciously resisted at each stage by the right wing Conservatives led by Mr Churchill in the House of Commons and Lord Salisbury in the Lords. This monster-child of the Mother

promise of help for the liberation of India from the British Rule In 1943 he inaugurated the Government of Free India at Singapore and his soldiers marched alongside the Japanese Army upto the very borders of India Whatever one may say about Subhas Bose s brand of violent patriotism it must be admitted that he was made of the stuff heroes are made and his genuine enthusiasm for the motherland was not any the whit less than that of Jawahar Lal Nehru or Sardar Patel

In May 1944 Gandhiji was released from the Ahmadnagar Fort on grounds of health He immediately took this opportunity to get in touch with Mohammad Ali Jinnah and explored the possibility of a compromise between the Congress and the Muslim League But Mr Jinnah remained as adamant as ever The partition of India is the only solution declared the Muslim Leader Mahatma Gandhi had to turn back disappointed more so as his bonafides had been questioned by Mr Jinnah In the meantime the war clouds went on raining blood on the European battlefields and India still remained at the mercy of possible foreign invasion At such a critical moment the British Government decided to send Sir Stafford Cripps in March 1942 to conduct negotiations for a possible understanding with the Indian political parties According to the Draft Proposals of the new Mission India was to be given the status of a Dominion with option to secede as soon as the War came to an end A federal type of Government was recommended for the whole of India including the States Whereas the Federal Government would handle Foreign Affairs Defence and Communication all other residuary powers would be vested in the Provinces and States A Constitution making body was to be instituted immediately upon the cessation of hostilities and the British Government was morally bound to approve the Constitution *provided* that any Province or Provinces under it were given the same freedom to secede and frame independent constitutions having the same full status as the Indian Union During the interim period the British Government was to retain full control of the defence activities of India as part of their World War efforts As a temporary measure the Mission proposed the establishment of an Interim National Government by a re arrangement of the Viceroy s Executive Council so as to include representative leaders of the various political parties

Mahatma Gandhi parried these brilliant strokes of British diplomacy with his wonted equanimity and inherent light heartedness In a phrase that has become well known he described the Cabinet Mission proposals as a post dated cheque on a crashing bank on the face of it too ridiculous to find acceptance On the day the Cripps negotiations began the Japanese took possession of the Andamans and on 6th April the first Japanese bomb greeted the Indian soil The Congress agreed to participate in a national government only if it were invested with full powers as a Cabinet with the Viceroy as Constitutional Head This was more than Sir Stafford Cripps had been authorized to accept and so he packed up to fly back to London The mission to India had run into sand

The next offer of full constitutional government came with the Cabinet Mission Plan in 1946 On the eve of the departure of the Cabinet Delegation to India Mr Attlee the British Prime Minister announced

My colleagues are going to India with the intention of using their utmost endeavours to help her attain her freedom as steadily and fully as possible What form of Government is to replace the present regime is for India to decide but our desire is to help her to set up forthwith the machinery for making that decision

I hope that India and her people may elect to remain within the British Commonwealth I am certain that they will find great advantages in doing so

But if she does not elect it must be her own free will The British Commonwealth and Empire is not bound together by chains of external compulsion It is a free association of the free peoples If on the

other hand she elects for independence in our view she has a right to do so It will be for us to help to make the transition as smooth and easy as possible

Charged with these historic words the Cabinet Ministers and the Viceroy started negotiations in New Delhi and Simla with all the leading Indian political parties But the differences between the demands of the Congress and the Muslim League were so unbridgeable that no agreement could be reached All the same the British Cabinet Mission formulated their proposals for a speedy setting up of the new Constitution After settling details about the formation of an Interim Government they proceeded to take up the question whether India should remain one organic unit or divided into two separate sovereign States The Muslim League demanded that their proposed State of Pakistan should comprise two areas one in the North West consisting of the Provinces of the Punjab Sind N W F and British Baluchistan the other in the North East consisting of the provinces of Bengal and Assam They based their claims for a separate State first upon the right of the Muslim minority to decide their methods of Government according to their own wishes and, secondly upon the necessity to include substantial areas in which Muslims were in majority so that Pakistan could become a workable reality both economically and administratively A close study of the statistical data showed that the North Western area comprised the Muslim and Non muslim population in a ratio of 62 07 and 37 93 , respectively whereas the North Eastern area had the proportionate percentage of 51 69 % and 48 31 % respectively These figures showed that the setting up of a separate State of Pakistan on the lines suggested by the Muslim League could not possibly solve the minority problem Apart from these facts there were other considerations which made the division of India into two units impracticable The whole of the Transportation and Postal and Telegraph Systems of India had to be established on a united basis There would also be the difficulty of the Indian States associating themselves with one unit or the other after the division The geographical facts also offered insurmountable difficulties in the way of forming two separate units The proposed two parts of the Pakistan would be separated by 700 miles and the communication would inevitably depend largely on the goodwill of Hindustan On the other hand the Congress put forth a scheme under which Provinces would have full autonomy subject only to a minimum of Central subjects such as Defence Communications and Foreign Affairs But this Plan also raised certain difficulties The question of the Indian States also baffled the Cabinet Mission planners because if the Plan were accepted paramountcy could neither be retained by the British Crown nor transferred to the new Government After taking all these considerations into mind the Cabinet Mission proposed that there should be a Union of India embracing both India and the States which should deal with Foreign Affairs Defence and Communication All subjects other than Union subjects and all residuary powers should vest in the Provinces whereas the States would retain all subjects and powers other than those ceded to the Union Provinces would have the freedom to form Groups with Executives and Legislatures and each Group could determine the Provincial subjects to be taken in common The Cabinet Mission then laid down the details for the constitution making machinery which was to be brought into existence immediately Elections based on adult franchise were to be the guiding principle but since that would imply an inevitable delay the recently elected Provincial Legislative Assemblies could function as electing bodies

We need not go into any further details of the Cabinet Mission Plan because even from this broad pattern any observer could see that it was not without many shortcomings Such a scheme made it impossible to pursue schemes of all India concern and interests In the absence of the federal control over Tariff and Customs each Group Province or State could easily hamper free movement of raw materials or manufactured goods from one part of the country to the other But its greatest inherent weakness lay in the danger to Defence of the whole country A weak and divided India would inevitably remain backward economically and dependent politically even though she might be theoretically independent

There were however further angry exchanges between the two leading parties over the interpretation of the Cabinet Mission recommendations After much dilly dallying the Muslim League announced its complete withdrawal from the Cabinet Mission s Plan The Viceroy in accordance with his previous announcements re organized his Council without any member of the Muslim League This political succes of the Congress was too much of a bitter pill for Mr Jinnah to swallow so he fixed 16th August 1946 as a day of Direct Action One of his followers Sir Feroze Khan Noon declared with a dramatic ring in his voice We are on the threshold of a great tragedy because neither Hindus nor the British realize the depth of our feelings If Britain puts us under a Hindu Raj let us tell Britain that the destruction and havoc that the Muslims will do in this country will put into shade what Chengiz Khan did And the Muslim leaders did take upon themselves the role of Chengiz Khan and let lose in the streets of Calcutta an orgy of arson loot and rape, the like of which one fails to find in world history The flames of communal riots leapt far and wide across the fair face of India with particular reprecussions in Bihar and the Punjab Hundreds of thousands of helpless men women and children were massacred in broad daylight by the communal fanatics—both Hindus and Muslims—till there was complete chaos and lawlessness prevailing everywhere Shrieks day and night pierced the skies and not a few lapsed into lunacy When Lord Wavell the then Viceroy invited Mohammad Ali Jinnah to join his Council to bring about some kind of parity between the two political parties the latter categorically refused to accept the offer thus further inciting the Muslim masses to challenge law and order There was thus no other alternative left for the British Government except to accept the principle of partition To allay all unnecessary suspicion about British intentions the British Government declared its decisioh to quit India by June 1948 and sent its representative Lord Mountbatten as the New Viceroy of India to supervise the transfer of power from the British to Indian hands This historic announcement gladdened every heart in India except the leaders of the Muslim League who became all the more incensed and intent upon wresting as much land from united India as possible Another wave of bloodshed and violence swept over the Punjab and North West Frontier Province These sad and unexpected developments had an adverse effect on the Hindus and Sikhs who had so far been enthusiastic for the cause of United India They now came to realize the futility of entertaining this hope and accepted in a deterministic frame of mind the inevitability of Divided India A cry went up everywhere for the partition of the Punjab and Bengal if the Muslims withdrew their co operation from the Constituent Assembly Lord Mountbatten was installed on the Vicergal throne on the 4th March 1947 and he broadcast a declaration to the nation on 3rd June elucidating the procedure and detail of the forthcoming transfer of power Some of the salient features of this historic declaraion were as follows —

1 If the Muslim majority areas so desired they could form these parts into a separate Union and a new Constituent Assembly would be instituted for that object In that case however a partition of the Bengal and Punjab would become inevitable if the Hindu Majority areas of these Provinces offered to join the Indian Union

2 The issue of the North West Frontier Province would be decided on the basis of an impartial referendum

3 Similarly the District of Sylhet could join the Muslim part of Bengal if the people of that territory so decided after a referendum

4 Boundary Commissions would be formed to decide the details regarding the partitioning of Bengal and the Punjab If the principle of partition was accepted by both parties the British Parliament would take immediate steps to confer Dominion Status on India and Pakistan without in any case conditioning the final decision of the Constituent Assemblies in this respect

This announcement was received everywhere with mixed feelings Whereas the nationalists deplored the partitioning of their motherland the Muslim Leaguers felt disgruntled over getting as their share only a truncated and moth eaten Pakistan But in the circumstances then prevailing there was no other alternative except to agree to the vivisection of India So the Congress and the League were forced into accepting the proposals The partition of Bengal and the Punjab was supervised by two Commissions appointed by the British Government under the Chairmanship of Sir Cyril Radcliff The British Parliament passed the India Independence Bill on 1st July 1947 and appointed 15th August as the date of the transfer of power On the historic midnight of 14th —15th August a vast sub continent passed from the foreign rule into the hands of her own sons

At a special Session of the Constituent Assembly held in Delhi India s first Prime Minister, Pandit Jawaharlal Nehru declared amidst deafening cheers and ceaseless applause At the stroke of the midnight hour when the world sleeps India will awake to life and freedom A moment comes which comes but rarely in history when we step out from the old to the new when an age ends and when the soul of a nation long suppressed finds utterance It is fitting that at this solemn moment we take the pledge of dedication to the service of India and her people and to the still larger cause of humanity Being a talented historian himself he had truly gauged the spirit of India s past and in a symphonic gathering up of the old threads he went on to say At the dawn of history India started on her unending quest and trackless centuries are filled with her striving and the grandeur of her success and her failures Through good and ill fortune alike she has never lost sight of that quest or forgotten the ideals which gave her strength We end today a period of ill fortune and India discovers herself again The achievement we celebrate today is but a step an opening of opportunity, to the greater triumphs and achievements that await us Are we brave enough and wise enough to grasp this opportunity and accept the challenge of the furture ?

But independence Nehru knew did not mean divorce from duties of national service Freedom and power bring responsibilities and therefore in the years to come there shall be endless toil indefatigable efforts in the cause of *uplifting the masses* A new *born* country was now *yoked to ceaseless hard work* To quote again from Nehru s historic speech That future is not one of ease or resting but of incessant striving so that we may fulfill the pledges we have so often taken and the one we shall take today The service of India means the service of the millions who suffer It means the ending of poverty and ignorance and disease and inequality of opportunity The ambition of the greatest man of our generation has been to wipe every tear from every eye That may be beyond us but as long as there are tears and suffering so long our work will not be over

And so we have to labour and to work and work hard to give reality to our dreams Those dreams are for India but they are also for the world for all the nations and peoples are too closely knit together today for any one of them to imagine that it can live apart Peace has been said to be indivisible so is freedom so is prosperity now and so also is disaster in this One World that can no longer be split into isolated fragments

Therefore the India of Nehru s dream was destined from the very beginning to play a decisive role in international affairs and command a voice in the counsels of the World and throw her entire weight with those other smaller countries of the East and West who were still engaged in the struggle for independence

In a message to the Press on 15th August Pandit Nehru was to strike a more meloncholy note in remem*brance of* the suffering of refugees and the oft repeated pledges of the Congress made from time to time We should also think he said Of our brothers and sisters who have been cut off from us by political boun

daries and who unhappily cannot share at present in the freedom that has come They are of us and will remain of us whatever may happen and we shall be shareres in their good and ill fortune alike

The future beckons to us Whither do we go and what shall be our endeavour ? To bring freedom and opportunity to the common man to the peasants and workers of India to fight and end poverty and ignorance and disease to build up a prosperous democratic and progressive nation and to create social economic and political institutions which will ensure justice and fullness of life to every man and woman

Those were lofty ideals indeed high summits to be attained and a nation to be roused out of centuries of slumber and inertia Such a miracle was not easy to be performed How far has the Congress been able to achieve at least a substance of these dreams is a question yet to be answered But before evaluating the achievement of the Congress we must pause here for a while to consider the insurmountable difficulties and handicaps the Congress Government had to face at the threshold of freedom Whereas unsympathetic critics hard hearted cynics must always growl and carp at established authority saner elements amongst the public would not fail to discern with confidence and pride the extent of nation wide awakening brought about by the Congress since independence



DARKENING CLOUDS

UNTIL after the middle of the 19th century India s past with all its glories and cultural achievements was considered as a heritage common to all people of India—Hindus Muslims Sikhs Christians and others The story of her long record of civilised existence was a perpetual source of inspiration to the people This tendency to go back to the past provided a solace that would reduce the sense of frustration and humiliation which foreign conquest and rule had produced Such a phenomenon is common to every country with growing nationalism The people of Iran predominantly Muslim as they are did often curiously recall the pre Islamic days of Iran s greatness and utilised these reminiscences of the glorious past in reinforcing their nascent nationalism

I have however little doubt that we would have continued to look to our common past with equal pride even if we had been an independent nation But accidents of history together with human failings and weak nesses arrested the normal growth of this national sentiment Thereafter the Hindus and Muslims who once owned a common culture celebrated common festivals and followed common customs began to diverge from the old tradition more and more

The cleavage was psychological in the first stage The Muslim upper classes came increasingly to feel that it was not proper for them to identify themselves with these semi religious traditions It was emphasized that any encouragement to those traditions was diametrically opposed to the spirit of Islam Propagation of these views soon prompted the Indian Muslims to seek their national roots elsewhere They devoted themselves more and more to the contemplation of Islam s past glories especially in other countries their thoughts turned increasingly to Islamic history and to periods when Islam was a conquering and awe inspiring force in certain parts of Europe Central Asia and elsewhere

There was perhaps nothing harmful in such contemplation by the Muslims of their past greatness even some Hindus admired the facts of Islamic history and recognized their bearing on the sentiments of the

Indian Muslims But the Muslims looked at this heritage of Islam in a way in which no one of the other community could do For them that feeling afforded a psychological satisfaction which was necessary to fill the vacuum caused by their growing dissociation from the old national Indian tradition

The year immediately following the Mutiny were crucial for the Muslims During this period they stood verily at the cross roads of Destiny as it were The ruthless repression of the Mutiny by the British had a greater impact on the Muslims than on any other community They felt that they had suffered more than others Their avoidance of Western education in the past had kept them back while the Hindus who had not shunned this education had got a big start in almost all the spheres of life The ending of the revolt also meant the extinction of the nominal Empire in Delhi to whose revival the Muslims had for long looked forward In consequence the Muslims became more intensely anti British as well as narrow minded They persisted in their contempt for the new education and refrained from it The compelling force of circumstances had imposed on them the British rule they had to accept it willy nilly Even the reveries of a revival of the old order could yield little consolation Physically down and out they were in a state of mental as well as spiritual chaos

Curiously enough the chance processes of history and the missionary zeal of a single individual came to the rescue of the Indian Muslims and helped uplift them from the abyssmal depths into which they had plunged

The Hindu had by and large shown greater flexibility in adapting themselves to Western thought and mode of life This adaptability had placed them in a position of vantage and had given them a lead over their Muslim brethern especially in the matter of government service Also they profited by the economic advantages which they had over the Muslims all over the country Soon however the political consciousness and awakening of the Hindus alarmed the British and the latter hastened to modify their attitude towards the two major communities in India The rising surge of nationalism they realized was backed mainly by the Hindus whom the Government had so generously patronized till then In accordance with the principle of balance and counterpoise the British policy thenceforward became more pro Muslim than pro Hindu

The reaction of the Muslim intelligentsia to this gesture of the Government might not have been favourable but for the efforts of Sir Syed Ahmed Khan an enthusiastic reformer who did his best to tone down anti British sentiments among the people of his community

Sir Syed s first efforts were directed towards the dissemination of English education among the Muslims He started the Aligarh College and secured the help of the British authorities in the execution of the educational programme which he had conceived for the Muslim community The awowed object of the Aligarh College was to make the Mussalmans of India worthy and useful subjects of the British Crown It was however not without considerable difficulty that Sir Syed was able to persuade his community to accept English education He cited the example of the Hindus who had gone far ahead in education and thereby in the services This was quite a powerful argument for the Muslims to act likewise The lure of government services was strong enough to brush aside old and deep seated hatred against the British

It is one of the ironies of history that a leader who was professedly and sincerely non communalist and a champion of national unity should have unwittingly paved the way for separatist tendencies that were to take shape later on Sir Syed was in no way anti Hindu he was a reformer fired with zeal and ardour for awakening the Muslims from their slothful lethargy and for uplifting them But in achieving these ends he aligned himself so closely with the British authorities that he alienated his comunity from the national organization which was then in its formative stage This alienation took place not because the national organi

zation was dominated by Hindus but because of its opposition to British rule Sir Syed met with singular success not only in spreading English education among the Muslims but, tragically enough also in inculcating in them an indifference towards the national political movement Had this selfless and ardent leader been successful in the educational advancement of his community without breeding among its members a sense of antagonism towards the National Congress his achievement would have been an unqualified success

The work done by Sir Syed and the tradition of the Aligarh College nevertheless led willy nilly to political consciousness among many Muslims of the younger generation Some of them even joined the National Congress despite the preaching of Sir Syed and his ardent followers This general political awakening among the educated Muslims was a potential danger for the authorities who gave considerable thought towards its diversion into a safe channel Indeed it was with a view to stemming this urge towards nationalism pervading the mind of the younger generation of Muslims that the British Government gave inspiration for the formation of the Muslim League in 1906

In its inception the Muslim League was an organization not merely for safeguarding the interests of the Muslims loyalty to the British Government was also one of its major objects It owed its origin largely to the efforts of the Aligarh College Group The out look of the trustees of the Aligarh College was [illegible] conservative—politically as well as socially A succession of English Principals helped not only in imparting this outlook on its alumni but also succeeded in leaving them with separatist tendencies and in encouraging in them anti nationalist and anti Congress outlook The chief aim that was kept before its students was entrance into government service—especially in the subordinate ranks

The Aligarh Muslim College soon became the breeding place of conservatism and anti nationalism And since the leaders of the Muslim intelligentsia came mostly from the Aligarh College Group it exercised considerable influence among the Muslim middle classes

The writings of Maulana Abul Kalam Azad then a youthful journalist and a budding writer of great promise in the Al Hilal and those of Maulana Mohammad Ali in The Comrade had however a great impact on the minds of the younger generation These writers sought to clear the atmosphere of misgiving and suspicion by indicating pointedly that there was no basic conflict between Islam sympathy for Islamic countries or their past greatness and Indian nationalism Both these writers had a tremendous effect in bringing the Muslim League despite its fundamental creed of isolating the Muslims from the nationalist current nearer to the Congress In 1913 the League abandoned its motto of loyalty to the Government and adopted that of self government for India

In the nineteen twenties the nationalist movement gathered great momentum in India The Indian National Congress grew in strength and vigorously challenged the legitimacy of British rule in this country The waves of nationalism touched the minds of the younger generation of Muslims too and quite a few of them rallied to the fold of the National Congress Some of them played significant part in the country s struggle for freedom Yet there were many among the Muslims who could not bring themselves round to joining the nationalist movement because it was dominated by the Hindus and appeared to have a Hindu outlook The result was that such elements among the Muslims moved in a separatist direction with the Muslim League which was then under the powerful influence of the poet and philosopher Sir Mohammad Iqbal The exhortations of Iqbal paved the way for the Muslim demand of Pakistan—the plan to partition India—which made a powerful appeal to the religious emotions of the Muslims Very few cared to reflect whether the fulfilment of such a plan was an effective remedy for their backwardness The cry of Islam in danger was enough to infuse the minds of the ignorant masses with a passion for creating a holy Land for the pure through a division of the country

The fanatical approach of prominent leaders of the Muslim League in attributing all the ills of their community to the exploitation by the Hindus who no doubt had certain economic advantages in the sphere of industry and trade at the same time played no small part in leading the Muslims away from nationalism Indeed the propaganda indulged in by the League was vulgar in the extreme devoted primarily to vituperative accusations against the Hindus There was little difficulty for the feudal elements under whose leadership the League had fallen to depict the Hindu community as solely responsible for the poverty and backwardness of the Muslims

That the creation of Pakistan was no panacea for the amelioration of the lot of the Muslim community as a whole was clear even to Sir Mohammad Iqbal who was one of the early sponsors of the plan Towards the end of his life the truth had dawned on him that such a scheme would not only be injurious to India as a whole but also detrimental to the interests of the Muslims whom it sought to benefit Iqbal had it seems given his unqualified support to the plea of partition because of his peculiar position as President of the Muslim League Subsequently be drifted away from this view to turn more and more towards socialism But once the movement had been started it required no thoughtful analysis of its ultimate value by the common Muslims for whom religion and politics had been made to look as synonymous All this had a gradual but increasing effect in embittering and straining the relations between the two communities

The Muslim League had been started under Government inspiration in order to keep the Muslims away from the Congress After this object had been achieved and a cleavage brought about among the Muslims and Hindus the Government set about to strengthen the barriers between the two communities At that crucial moment in India s history the authoritarian and all pervasive British rulers introduced separate electorates for the Muslims

Muslims standing for elections were thereafter elected only by a separate Muslim electorate This isolated the Muslims from the rest of India and had a pernicious effect in public as well as social life Its vicious off shoots went down to elections to the municipal and other local bodies The greatest harm done by it was however psychological People came to look at things from a narrow communal point of view forgetting the larger interests of the country as a whole By inculcating in the Muslim mind the psychology of fear this lent yet another powerful argument in favour of their demand for Pakistan At the same time it retarded the growth of political consciousness among the Muslims

The general elections in 1937 provided an opportunity for the Congress to form Ministries in some of the provinces of India In many provinces Congress Muslims were appointed Ministers But this representation of the Muslim community through Muslims elected as Congressmen hardly satisfied the Muslim League which had begun gathering strength under the leadership of Mr M A Jinnah Jinnah s was a negative attitude and his influence on the League was a great obstruction to the solution of the communal problem Muslim masses who had in the earlier decades of the century shown a tendency towards nationalism began rallying round the local and feudal leadership which approached them in the garb of Saviours of Islam With their solgan of Islam in Danger —a slogan which naturally had a powerful emotional appeal for the masses—the leaders of the Muslim League did not experience much difficulty in bagging a fairly large number of seats in the Provincial Legislatures

It was at this stage soon after the constitution of Congress Ministries that an astonishing rather fantastic campaign was launched on behalf of the Muslim League against the Congress Time and again it was repeated that the Congress Governments were perpetrating atrocities on the Muslims (It is worth noting here that these Governments had Muslim Ministers who very often held very important portfolios though they did not owe allegiance to the Muslim League) What these atrocities were and

what the grievances of the Muslim League were was never precisely defined Very often some local squabble which had nothing to do with the Government was so distorted and unduly magnified as to lend it the colour of a great inhuman and heinous wickedness In other cases some minor lapses of some department which were soon set right were exaggerated so fantastically as to present them as atrocities In yet other cases entirely baseless charges were levelled against the Congress Governments and the Congress organization with a view to dubbing them both as instruments of Hindu communalism

This campaign of hurling abuses and making carping criticism of the great national organization continued unabated despite offers of inquiry made by Congress Governments and the Congress President to those who made the charges These people were invited to furnish particulars for investigation and even to come forward and inquire themselves with Government help The Muslim League would not deign to accept these offers for inquires Their refusal to cooperate only showed their intransigence and their stubborn persistence in widening the gulf between the two major communities in the country It also revealed the baselessness of their charges Even some of the British Governors who held offices as Heads of the various provinces during the tenure of the Congress Governments made public declaration that they had nothing to complain about the treatment of minorities Moreover the Government of India Act of 1935 had given them abundant powers to safeguard the interests of the minorities if any such need arose

The Congress Governments had always endeavoured to win over the Muslims and other minorities as it was their interest to do so Indeed so considerate was their treatment of the Muslims that other sections of the people complained that the Congress was following a policy of undue appeasement of the Muslims But since the Muslim League was adamant in defying any reasonable consideration of any matter its leaders ingenious as they were improvised new tactics for slandering the Congress They set before themselves as their chief aim the hoodwinking of the Muslim masses into making them believe that their total annihilation was under way and that the Congress was directly responsible for it Towards the achievement of this goal the Muslim League leaders initiated a campaign of violence and incitements through speeches and in their newspapers Demonstrations of violence became frequent Even when a Congress Muslim Minister was stabbed no Muslim League leader disapproved of that act In fact the violence vulgarity and irresponsibility which became rampant among the newfangled fanatical members of the League were more often than not let loose by responsible Muslim League leaders themselves

Religious fanaticism was quite potent in giving the Muslim League a mass backing and in developing it into a mass organization That does not however imply that the League had the backing of all the Muslims Many resisted its ideology and some Muslims were prominent leaders of the Congress itself while there were many others who joined other Muslim organizations which were opposed to the basic policy of the Muslim League None the less the League won most of the by elections in the early forties although a considerable number of Muslims voted against the League candidates The virus of communalism once successfully injected into the body politic could not but spread rapidly and show its evil effects

The entire history of India bears testimony to the toleration accommodation and even encouragement of minorities Religious and cultural toleration was inherent in India It is therefore all the more curious that people should have so imbibed the ideas of religious cleavage as to look upon the members of the other community as their sworn enemies Yet it was so Communal religious organizations and the policies and actions of the then Government of India were successful in poisoning the relations between the two communities The imaginary fear of the major religious community swallowing others seriously began to exercise the minds of the Muslims Obviously the fear was that larger numbers might actually overwhelm the minority

The Congress stood not only for national independence it also advocated revolutionary social changes *The communal organizations whether Muslim or Hindu were hand in glove with the feudal* and reactionary elements and were consequently opposed to any social change whatsoever Religion had in fact little to do with the conflict between the two communities it was merely exploited by religious communal organizations to mask the real issue These organizations clung to foreign support which was interested in maintaining the status quo

Even before the Second World War—indeed long before it—the Congress made continuous efforts to come to an agreement with Mr Jinnah and the Muslim League But the negotiations never got beyond a preliminary stage Mr Jinnah insisted that the Congress must openly recognize the Muslim League as the sole representative of the Muslims and should consider itself as no more than a purely Hindu organization This gave rise to a grave difficulty Whereas the Congress was prepared to acknowledge the importance *of the Muslim League its leaders found it difficult to ignore other Muslim organizations in the country* Besides there were large numbers of Muslims within the Congress itself Were the Congress to concede Mr Jinnah s fantastic claim it would have to throw out the patriotic Muslims from its fold and to openly proclaim that the organization was not open to Muslims This would have resulted in reducing the great national organization to the status of a petty communal body

Mr Jinnah supported this demand on a new conception which he and his lieutenants took great pains to propound to the Muslims—that India consisted of two Nations Hindu and Muslim It was an unrealistic conception which Mr Jinnah s ingenuity had dug out of some obsolete medieval theory It was moreover an utterly vague and ill conceived notion rather difficult to grasp All the same the way in which it was propagated had great effect on the ignorant and emotional Muslim masses who blindly *accepted the new doctrine Matters soon came to such a pass that the existence of fear mistrust* and suspicion among the Muslims had to be acknowledged

The eve of the Second World War found India riven with communal bickerings which occasionally manifested itself in violence and communal riots over petty issues The British Government realised that the co operation of India was almost indispensable for winning the War It was essential for geographical and strategical reasons The Churchill Government therefore sent the Cripps Mission to India in 1942 to give an assurance to the people of this country that their whole hearted unstinted co operation and participation in the War would ensure them Dominion Status after the termination of hostilities This was no empty promise But the Congress had been driven largely due to lack of vision on the part of the local administrators to adopt an attitude of non co operation Besides promises coming from the Churchill Government were open to suspicion

Events thereafter began heading for a climax and it became clear that India could no longer be ruled by a handful of British officers in the civil administration or in the Army that wisdom lay in arranging to transfer power to the Indians before it was actually wrested from Britain The Churchill Government therefore decided to accept what was un avoidable On 14th of June 1945 the Secretary of State for India made the historic announcement that the proposals of the Cripps Mission were acceptable to the Government in their entirety Lord Wavell the then Viceroy made a similar announcement in India and followed it up by the release of the members of the Congress Working Committee It was further decided that the Viceroy s Executive Council should be replaced by another composed of representatives of the major political parties A conference was held at Simla to settle the details But Mr Jinnah the embodiment of Muslim mistrust adhered stubbornly to the Two Nation concept The Muslim League claimed the right to represent the entire Muslim community and demanded the sole prerogative of nominating the

Muslim members to the Executive Council To this the Congress rightly took objection and since Mr Jinnah would not see reason the Simla Conference proved a failure

In the meantime the Labour Government came into office in Britain and the strategy of consultations with the Indian leaders underwent a sudden change In September 1945 Lord Pethick Lawrence the new Secretary of State for India announced elections to the Central and the Provincial assemblies This was a sincere effort to ascertain the wishes of the people particularly in regard to those of the Muslims vis a vis the Muslim League It was further declared on behalf of the British Government that elected representatives of the people would elect a Constituent Assembly which would also have representatives from the princely States The Constituent Assembly thus constituted would then deliberate about the form of Government in free India and an agreement would be arrived at between this Assembly and the British Government

Both the Congress and the Muslim League received the announcement with reservations Never theless both the parties chanced the elections The result of the elections established two things In the Central Assembly both the Congress and the Muslim League candidates were returned in large numbers This gave strength both to the Muslim League demand for a separate State and the powerful Congress opposition to this demand In the Provinces particularly in the Punjab and Sind the Muslim League however gathered formidable strength This lent powerful backing to the League s clamour for partition of the country

The Labour Government then sent to India the Cabinet Mission comprising Lord Pethic Lawrence Sir Stafford Cripps and Mr Alexander to resolve the baffling issue of transferring power The Mission succeeded in issuing their plan on 16th of June 1946 This plan asserted the imperative need for an interim Government composed of representatives of all the major political parties It did not favour the creation of Pakistan Instead it advocated a Union at the Centre empowered with the responsibility of dealing with Foreign Affairs Defence and Communications It also provided that groups of Provinces would be free to form their own Executives and Legislatures which in turn would determine the allocation of subjects between the groups and the Provinces concerned The Constituent Assembly which was to frame the Con stitution of the Union and of the Provinces was to be directly elected on the basis of one member per million of inhabitants

The elections to the Constituent Assembly were held in August 1946 As a result thereof the Congress secured in a House of 296 as many as 211 seats including many Muslim seats For reasons that were not very clear Mr Jinnah withdrew from the Constituent Assembly and the Muslim League s elected representatives refused to take their seats Mr Jinnah had earlier refused to co operate in the for mation of an interim Government

Mr Jinnah s attitude though reprehensible and negative had the backing of large number of Muslims The deadlock was complete On 16th of August 1946 the Muslim League launched their Direct Action which led to a series of ugly events and soon assumed the proportions of a widespread civil war

On 26th of October 1946 the Muslim League joined the Interim Government This certainly created a queer situation The League decided to participate in the Government while boycotting the Constituent Assembly Pandit Nehru on behalf of the Congress was anxious to secure co operation on whatever terms it was forthcoming provided it resulted in restoring efficient civil government The Congress was confronted at this juncture with two formidable problems one was to carry on the fight with Imperial Power on the issue of sovereignty of the country and of its complete independence and the other

was the tackling of Muslim communal forces gathered under the aegis of the Muslim League which seemed intent on permitting the single choice between separation and civil war

The object of the entry of the Muslim League in the Interim Cabinet was to foil the Nehru Cabinet s efforts at unifying the country The two sections of the Government—Congressites and Leaguers—functioned as opposing blocks In order therefore to bring a sense of urgency to the leaders of various parties Mr Attlee announced on 20th of February 1947 the firm decision of the British Government to transfer power by June 1948 Unfortunately this too had no salutary effect in bringing the opposing blocks nearer it rather widened the gulf between the two major communities

Meanwhile Lord Wavell was recalled and on 24th of March 1947 Lord Mountbatten was sworn in as the last Viceroy of India Lord Mountbatten was appalled by the ugly situation in the country which was at that time seething with large scale though spasmodic civil war In April 1947 there was again a violent resurgence of large scale communal strife in different parts of the country

Resolved in his mind to find an effective remedy for this almost unceasing internecine (communal) feud Lord Mountbatten went to England in May 1947 for detailed consultations with the British Government On 3rd of June 1947 soon after his return Lord Mountbatten announced the British Plan of vivisecting the country into Pakistan and India A Boundary Commission was announced

Pandit Nehru agreed to these proposals though reluctantly as the right course In fact it was the only course at that time and there was no escape from it Human ingenuity was unable to devise any other means acceptable to all

THE AFTERMATH

In my end is my beginning —T S Eliot

AS mentioned in the previous chapter the partition of India had to be accepted as an inevitable outcome of the two nation theory as sponsored by the Muslim League As India stood on the threshold of Independence on 15th August 1947 she looked towards the future with hope as well as trepidation India had become free but partition had sown the dragon s teeth The tasks that lay before the new Congress Government were enormous in dimensions and presented insurmountable difficulties of all sorts The most immediate problem was how to carry on the general administration with only a handful of trained officers Most of the British I C S personnel had left the country and those who remained on the scene had to readjust themselves psychologically to the new environments Whereas during the British regime they had been the pillars of British rule in India now they were required to shoulder the responsibilities of serving a National Government The intense zeal and patriotic fervour of the national leaders however enabled them to overcome the initial difficulties In a very short time the Government of India was on its feet again armed with confidence and hop to face all administrative problems

One of the greatest problems that the new Government of India was required to handle was that of Relief and Rehabilitation Millions of refugees had crossed the borders penniless and helpless Five million men women and children crossed into India from West Pakistan alone another 3 5 million came from East Pakistan It is true that nearly 4 million Muslims had also left India for Pakistan but the financial losses suffered by the Hindu refugees were far greater than those of the Muslim refugees Whereas these refugees had landed property in Pakistan worth crores of rupees they had come over to India with no more than bare clothes on their bodies These destitute people had to start their livelihood from scratch

and it must be said to their credit that in spite of all kinds of tribulations they had to face they did not show any signs of despair or helplessness The Government was called upon to face the problem of rehabilitating these refugees—a problem of unprecedented magnitude Accommodation had to be provided for those who found no shelter over their heads This immediate task of finding board and lodging for these unfortunate refugees threw all other problems into the background At one time the number of displaced people living on the dole touched a million The cost of maintaining each refugee was a heavy drain on the Central Exchequer it meant one rupee a day per head and involved an expenditure of about 1 million rupees daily This extraordinary expenditure had to be met until the end of 1950 In all Rs 325 7 million had to be spent only on relief measures in the various camps scattered over the length and breadth of India

Since the Government could not afford to incur this colossal expenditure indefinitely it felt the imperative necessity of finding ways and means of providing suitable employment at least for those who were educated or otherwise skilled in various technical professions An aspect of this general problem of rehabilitation was the task of providing land to those land lords who had left their rich granaries in West Punjab In proportion to the lands they had left behind they could be provided with only an insignificant part of land on this side of the border The total cultivable land available in the Punjab and Pepsu was 4 735 000 acres while there were as many 5 77 000 claimants who wanted immediate facilities to start the work of cultivation The Government, therefore felt it necessary to devise schemes for ascertaining the claim of each land lord to meet his demands accordingly Most of these refugees were settled on the lands in other States of India like Uttar Pradesh Bhopal Bikaner etc The enormity of the task of rehabilitation was so great that even at the end of 1950 15 000 agricultural families had still to be settled adequately

Urban rehabilitation presented a new series of problems The educated and trading classes had to be provided with suitable accommodation and respectable means of livelihood It was fortunate that the Government was in due course of time able to accommodate 2 050 000 urban refugees in reconditioned barracks new buildings or evacuee houses Since most of the fertile lands had been left behind in Pakistan the Congress Government was also called upon to explore ways and means of reclaiming waste land for purposes of food production These demands on the Central Treasury imposed a heavy burden on the new Government

The food problem was another great source of headache for the new Government It should be mentioned here that even during the years before independence India was deficit in food Her population was *increasing at a quick rate and the food resources did not increase accordingly Partition further worsened* the position owing to loss of cultivable lands by India and the enormous influx of refugees from Pakistan With food resources already deficit India had to feed the displaced persons who swarmed in millions into India from the Punjab and East Bengal As a result of this extra pressure on our food supply we were forced to ask for help from such foreign countries as America and Russia This imported food in the form of wheat and rice however was sometimes bought at high rates which further meant a heavy drain on the national treasury Although rationing was introduced to make it possible for all Indians to have an equitable distribution of food this method of regulating food supplies created innumerable other difficulties Mahatma Gandhi was never in favour of introducing rationing but like Partition it also had to be accepted as an inevitability

While the Government of India immediately after Partition was marshalling its resources to meet the economic agricultural and social problems of the moment the communal fanatics were busy creating still further problems for Nehru s Government Forgetting that the communal differences between the Hindus and Muslims were greatly responsible for the partition of this country the Hindus and the Sikhs divided

themselves into opposite camps in the Punjab The Sikhs demanded a State of their own while the Hindu Maha Sabhaites clamoured for Hindu Raj With the result that the social and political ranks of this border State were sharply divided into two warring camps and for sometime there seemed to be no hope of any compromise

Pandit Jawaharlal Nehru had an arduous task before him in convincing his countrymen of the futility of fighting in the name of religion In the course of a famous speech delivered in the Constituent Assembly after the partition he said that religion and politics must be kept separate from each other because their mixture always formed a dangerous alliance We have seen as a matter of fact how far communalism in politics has led us all of us remember the grave dangers through which we have passed and the terrible consequences we have seen In any event now there is no other alternative and we must have it clearly in our minds and in the mind of the country that the alliance of religion and politics in the shape of communalism is a most dangerous alliance and it yields the most abnormal kind of illegitimate brood This combination is harmful to the country as a whole it is harmful to the majority but probably it is most harmful to any minority that seeks to have some advantage from it But the minorities paid no heed to these words and they continued to foster communal tensions which made it impossible for the new Government to pursue its various schemes of nation building The Punjab presented the grimmest spectacle of communal fanaticism The Akalis under the leadership of Master Tara Singh and the Hindu masses under their Hindu Mahasabha leaders entered the open arena to decide issues through violent means The result of this communal tension was that many anti social elements raised their ugly heads defying all authority and destroying the very structure of society

When the Government s hands were full with some of these problems the news came that the tribal invaders had crossed into Kashmir and started a reign of terror in certain parts of that State The impact of partition was felt in this border State as well When this news reached Delhi the Government was taken aback For a moment the situation seemed to be quite hopeless The Maharaja of Kashmir had fled from the Capital in fear and despair while the tribal invaders kept marching on the road to Srinagar Pakistan was openly abetting the invaders who hoped to overrun the happy valley of Kashmir and place it as a trophy at the altar of the new Muslim State Fortunately Nehru's Government rose to the occasion and immediately despatched troops by air to Kashmir and brought the situation under control

The Kashmir trouble was still brewing when the question of Hyderabad cropped up The Nizam of Hyderabad had for some time been openly sending money to Pakistan Now there was even the direct threat to accede to Pakistan The Nizam s forces were ready to meet any emergencies The Indian Government decided to nip the evil in the bud and controlled the situation before it was too late How could the Congress Government allow a State like Hyderabad which almost formed the heart of this country to become a part of any foreign State ? The Pakistani statesmen however argued that since the decision to accede to one country or the other lay with the Nizam the Indian Government had no right to force its decision on this State But Pandit Nehru in consultation with his colleagues decided to make Hyderabad an integral part of India because this State had become immediately after partition a hot bed of reactionary forces Pakistani machinations and communist propaganda In the course of a speech Pandit Nehru said that a territory like Hyderabad, surrounded on all sides by the Indian Union and with no outlet to the rest of the world must necessarily be part of the Indian Union Historically and culturally it had to be a part but geographic and economic reasons were even more peremptory in this matter and they could not be ignored whatever the wishes of particular individuals or groups of individuals Any other relationship between Hyderabad and the rest of India would have involved continuing suspicion and therefore an ever present fear of conflict Therefore it was decided to lead police action against Hyderabad which resulted eventually in the accession of this State to India Hyderabad was another problem created by partition and it was handled with tact care and firmness

FOREIGN POLICY

Immediately after partition India found herself surrounded by conflicting political policies of the European countries which were trying hard to win her over to this or that side of the Iron Curtain But under Nehru s farsighted leadership India soon realised that her true destiny lay not in siding with one or the other Bloc but in remaining aloof from all international conflicts For the first few months, India did not win any recognition in the United Nations The fact that she was diplomatically inexperienced and had remained under foreign domination for about two centuries made her voice abroad rather weak and ineffective Referring to this initial disadvantage Pandit Nehru said in one of his earlier speeches (December 4 1947) When our delegation went to the United Nations it was looked a little askance They did not know what it was going to do When they found that we acted according to our own will they did not like it We were unpopular last year at the United Nations There was suspicion in the minds of the first group that we were really allied to the other group in secret though we were trying to hide the facts and the other group thought that we were allied to the first group in secret though we were trying to hide the facts

At home too the Government had to face a shower of criticism from fanatical and irresponsible critics who wanted India to take sides with one of the two powerful Blocs They argued that neutralism was a cowardly policy which avoided the responsibility of taking a bold and positive line of action in league with some Bloc After long and heated discussions in the Indian Parliament Pandit Nehru succeeded in convincing his countrymen of the futility of jumping into the boiling cauldron of international conflict He observed in unequivocal terms that international conflicts are not just empty struggles on a chess board Behind them lie all manner of things Ultimately foreign policy is the outcome of the economic policy and until India had properly evolved her economic policy her foreign policy will be rather vague rather incohate and will be groping It is well for us to say that we stand for peace and freedom and yet that does not convey much to anybody except a pious hope Therefore he urged his countrymen to avoid interfering with power politics and remain equally sympathetic towards all countries He proposed that India should maintain closest terms of friendship with other countries unless they themselves created difficulties for her We intend co operating with the United States of America and we intend co operating fully with the Soviet Union because our general policy would be to avoid entering into anybody s quarrels Even purely from the point of view of opportunism a straight forward honest policy and independent policy would be the best He repeatedly stressed the usefulness of his policy of non alignment especially in view of its successful performance in the first two years of Independence In a later speech delivered in the Constituent Assembly on March 8 1948 he reiterated We have stated repeatedly that our foreign policy is one of keeping aloof from the big blocs of Nations—rival blocs—and being friendly to all countries and not becoming entangled in any alliances military or other that might drag us into any possible conflict Some people have criticised and suggested to us that that is not a good enough policy and that we are losing what we might get by a closer association or alliance Others on the other hand have criticised us by saying that while we say one thing we act secretly or otherwise in another way It is a little difficult of course to give an answer to any imputation of motives but as a matter of fact we very strictly followed the policy of not getting entangled in any kind of commitment certainly not military commitment with any Power or group of Powers and we propose to adhere to that policy because we are quite convinced that this is the only possible policy for us at present and in the future That does not on the other hand involve any lack of close relationship with other countries

It was as a result of this policy that India immediately after Independence came to develop very close contacts with all neighbouring countries In spite of the fact that partition had provoked an enormous amount of communal virus India s policy of peaceful co operation abroad enabled her to win

over even such Muslim States as Afghanistan Persia Saudi Arabia Egypt and other Muslim countries of the Middle East Although Pakistan had declared herself as a Muslim theocratic State India in spite of her secularism and neutralism was able to offend no country On the northern, north eastern and southern frontiers India was already heading towards establishing close political and economic relationships with Tibet China Nepal Burma Malaya, Ceylon and Indonesia In fact most of these countries began to follow in India s footsteps by discarding alliances with any of the powerful Blocs

It was India s peaceful foreign policy, which made it possible for the Indian Government to handle her domestic problems with confidence and resourcefulness India had emerged after partition as a country which had lost most of her agricultural areas to Pakistan All rich jute fields were left in East Bengal in consequence of which Indian jute industry received a serious set back India had also inherited machinery which had been mostly damaged during the Second World War Locomotives rail bogies and other heavy machinery needed immediate repairs before they could be put to any use Petrol and other kinds of fuel were scarce and due to black marketing most people could not satisfy even their barest requirement of these fuels The irrigation system of the United Punjab had also created peculiar problems after partition To India s share had fallen only an insignificant part of the rich irrigated areas

Politically, India had to face innumerable problems on the home front Hundreds of small Princely States threatened to secede from the Indian Union and form independent autonomous units of their own They claimed to have assumed paramountcy after the withdrawal of the British from India Sardar Patel the Man of Steel solved the States problem with shrewd understanding and great statesmanship Whereas Kashmir had started a conflagration on the border Hyderabad nearly stabbed India in the heart by claiming independence and openly showing her sympathies for the Muslim State of Pakistan These problems would however be examined in detail in subsequent chapters Suffice here to say that although India had attained freedom on 15th of August 1947 she had no smooth sailing for the next few years Pt once Nehru remarked aptly that India had as many problems as there were Indians on her soil Internationally from a country dependent upon other foreign powers she was able to carve out a destiny of her own The various projects which Nehru s Government envisaged in the next few years needed every one s co operation Relations between Capital and Labour had to be readjusted on the basis of mutual benefit understanding and co operation No wonder in the face of all these problems mostly legacies of the Partition, Nehru in the course of one of his speeches called upon the Nation to spare no efforts in leading India from chaos to order

We have today to face not one problem but a multitude of problems It is very difficult to decide that you will set aside all these problems and take up one or two first We just cannot because if we slacken our attempt to solve some problems and merely concentrate on one or another, the other problems tend to overwhelm us Let us take the problem of refugees There are millions of them It is not a fundamental problem as problems go It is a temporary problem But it is of exceeding importance It is important because a large number of human beings and their lives are involved it is of vital significance to the nation We cannot allow human material to deteriorate and simply go to pieces This problem together with hundreds and thousands of others would indeed tax India s resources to the maximum for some years to come But we cannot escape them Not being able to escape we have to face them like men and conquer the difficulties I am afraid in our generation (I do not know about succeeding generations) there is going to be little rest or real peace There are going to be no dividends of leisure and repose brought about for our generation The prospect before us is work hard labour *This generation is sentenced to hard labour* That hard labour can be of the type of constructive activity which however hard is something that raises the community and the nation or it may be in fruitless labour or even evil labour but hard labour you cannot escape Therefore let us divert that hard labour into constructive and creative channels so that at least it may be said of this generation that we helped to build up our country to the fullest extent possible

HARDLY two months after gaining independence the Indian Armed Forces mettle was put to a supreme test A newly freed and much distracted India made an early call on her armed forces to defend her honour and integrity And they came out of the supreme test in flying colours Indeed their performance in Kashmir served as a much needed tonic to a depressed demoralised nation reeling under the impact of the Partition holocaust

Partition and the sudden withdrawal of the British officer element had left the Indian Armed Forces in a disorganised state Dark prophecies by the egotistic departing British officers about the efficiency of Indian soldiers bereft of their British commanders had at the outset made many an Indian frankly nervous over the new Indian army s performance in the field of battle

In a way therefore it was providential that so early in free India s career its armed forces should have had an opportunity to prove their mettle and that in the semi Arctic mountainous battlefields of the North For that was the silver lining in the cloud on the horizon of free India born in travail and it injected in the nation a new confidence in itself If its armed forces could effectively guard the nation against external aggression the nation could struggle to its feet by hard work and sacrifice

Indian troops and airmen in Jammu and Kashmir fought other foes besides the raiders Their major battle was against the elements Fighting the raiders was the least part of the campaign No harder training ground could have been found for free India s armed forces Compared with the terrain and conditions of fighting in Kashmir the Arakan and Assam campaigns during the last world war were almost a picnic

From the Arctic conditions in the Zoji La and Gurais in the north to the mountain to mountain fighting in Uri in the west and the steamy jungles of Jhangar in the south Indian troops in Jammu and Kashmir spanned a wide range of terrain and climate

Foremost the Indian army in Kashmir fought against thin tenuous lines of communications quagmired by rain obliterated by land slides and choked by winter snows

The 200 mile long Jammu Srinagar road is a geometrical nightmare this was the life line of troops in the Kashmir valley as well as of the civilian population Keeping this road functioning in fair weather and foul was the battle in which Army engineers and the Pioneer Corps engaged themselves

War in the Uri sector really meant fighting up and down and on the top of a series of mountains eight to ten thousand feet high Clearing a road block in this sector amounted to clearing up the enemy perched on the top of the high mountains flanking in waves on either side of the road He who took the offensive in this sector had first to demolish these piquets

In winter they were snow bound and yet throughout the winter of 1947 and 1948 Indian troops—many of whom had never seen snow in their life—kept vigil here vigorously throwing back the enemy s repeated attempts to penetrate into the Kashmir valley

Further north around the Zoji La and Gurais the fighting conditions were nearly Arctic all the year round This is the erie land of blizzards and avalanches The term Zoji La itself means in the Kashmiri language Blizzard Pass Here our piquets were perched on mountains 16 000 to 17 000 feet high perpetually covered with snow Living at these heights was a new and strange experience for the jawans

At this altitude breathing becomes hard and one is often afflicted with headaches it takes three hours to brew tea and four hours for potatoes to get half boiled and one hour for a chappati to be baked Cooking rice and pulses and meat at these heights was of course out of the question

Whenever the weather was good cooked meals were sent up to the piquets from the base Mules and porters threading their way along bridle paths and goat tracks were the only medium of supplies to our troops in this sector

Leh in distant Ladakh in the north east could be reached only at the end of a month s trek through difficult mountain paths Aircraft flying to Leh had to be equipped with de icing and oxygen apparatus Airlift operations had to be carried on at incredible heights and although the aircraft available were unsuitable for high altitude flying the IAF pilots maintained regular supply and successfully defied the rigours of Himalayan weather

Nestling in the foothills of the Himalayas Jammu Province is the watershed of many streams which go to swell the great Indus The country is broken by ravines streams and rivulets It is thickly wooded and covered with tree and shrub making concealment easy In the rainy season vast stretches of country are reduced to quagmire

All these natural and logistic barriers the Indian Army conquered This was an outstanding military achievement But the people of Jammu and Kashmir admired the Indian Army for another reason They will remember with gratitude the Indian Army s war against disease and epidemics in their midst while the network of modern roads touching the remotest parts of the State—which are their roads to prosperity—will be a standing monument to the Indian Army s good work in the State

The Die is Cast

When on October 25 1947 the Maharaja of Jammu and Kashmir Shri Hari Singh sent an SOS to the Government of India the fate of the entire State hung in the balance The plea for immediate mili tary aid was supported by Sheikh Abdullah the then undisputed leader of the people of the State On Octo ber 26 the Maharaja signed the instrument of Accession the same day the Government of India took the momentous decision to send military aid to Srinagar

On October 27 the first batch of Indian troops under the command of Lieutenant Colonel D R Rai flew to Srinagar They flew because that was the only medium of transport left to them at such short notice By land they would have reached their destination too late Some 300 miles of precarious fair weather road lay between India and Srinagar

Over a hundred civilian aircraft were immediately mobilised and assembled overnight in Delhi s Safdarjang airfield to fly troops equipment and supplies to Srinagar It was an inspiring spectacle to watch the hectic activity at this airport A shoal of silver winged planes gleamed in the morning sun as jungle green clad men worked like ants loading the aircraft with men guns ammunition and equipment Air force and civilian pilots and ground crews rose to the occasion and worked day and night to make the air lift a succe s The ferry service to Srinagar continued unabated upto November 17 during which time 704 sorties were flown from Delhi

Seldom in the history of warfare has an operation been put through with so little previous planning and with so many handicaps Lines of communication were almost non existent and intelligence of enemy strength and dispositions was nil Indeed when the first troops were flown for Srinagar they were instructed to circle over the airfield before landing lest they should land on a strip already captured by the enemy The instructions to Col Rai were not to land if there was any doubt on the point and to fly back to Jammu After an interval of tense suspense lasting nearly two and a half hours wireless flash from Srinagar announced the safe landing of the first wave of troops

On October 27 when the first wave of Indian troops under Col Rai landed in Srinagar the invaders were already in Baramulla hardly 35 miles from the capital Col Rai s orders were to defend the airfield and consolidate his position On landing however he found himself faced with a dilemma He had to take quick decision—the enemy was at Baramula the strategic bottleneck which opens into the Srinagar valley Once the invaders were allowed to enter and fan out into the Srinagar plain the game was up Should he give immediate battle to the invaders estimated at anything between 3 00 and 5 000 at Barmula with his woefully inadequate force or wait till adequate reinforcements arrived ?

Col Rai took the decision and crashed into the invaders column at Baramula It was an act of great courage Commandeering civilian buses he rushed his troops within two miles of Baramula Hold ing one company in reserve he put in an attack with another company This was the first action fought by the new Indian Army of free India and it straightaway drew blood in that the commander of the small gallant band himself fell But the action produced the desired result—the enemy had been staggered dis organised and halted in his advance long enough for reinforcements to arrive from India

The situation in the first week of operations in Kashmir can best be described as touch and go The threat to Srinagar continued even increased For the Indian Army it was a critical week of desperate struggle to gain time until adequate numbers of troops were flown in from India That struggle took the shape of a series of offensive delaying actions During this first week the Indian Army suffered its second officer casualty when Major Sharma was killed by a mortar bomb exploding near him

The turning point in the battle for Srinagar was the arrival of one squadron of armoured ars which adventured their way to Srinagar by the perilous 300 mile road from the East Punjab via Jammu nd the 9 000 foot high Banihal Pass and over ricketty bridges fit only for light tourist traffic In Srinagar arge crowds lined the route and loudly cheered the cavalcade as it rumbled past

On November 7 the process of rolling back the enemy from the gates of Srinagar began with the newly arrived armoured cars playing a pivotal role in the operation The battle of Shelatang that followed asted twelve hours and set in motion the enemy s precipitate retreat and the raiders did not stop running ntil they reached Uri

The next stage in this 14 month operation was the fighting in the Jammu sector which witnessed some f the fiercest battles and most tenacious resistance from the raiders Here the Indian Army s task was urther complicated by the hordes of refugees crossing their path or demanding shelter and protection

The battles of Jhangar Naushera and Rajauri and the defence of Punch are the landmarks of the *ampaign in Jammu which claimed the life of an outstanding soldier and commander of high promise in the* erson of Brigadier Usman who led his men to victory but himself was killed in the famous battle of Jhangar Here too fighting against odds and the elements the Indian Army ably assisted by the Indian Air Force teadily pushed the enemy back to the border

The battle of Kot set in motion a chain reaction in Jammu that culminated in the battles of Naushera and Jhangar Brigadier Usman launched the attack on Kot by first light on February 1 and by 10 O clock this feature overlooking the Naushera Tawi valley was captured the enemy fleeing leaving behind 150 killed and 200 wounded

As if avenging this defeat the hostiles massed their strength for a major assault on Naushera itself *The attack was launched on February 6 and the biggest battle of the Kashmir campaign was fought Under* cover of darkness just before dawn 4 000 hostiles stormed the Indian positions south east of Naushera while another 3 000 attacked from the north east Simultaneously some 5 000 hostiles attacked two of our pickets north east of Naushera The enemy flung himself on to our positions in waves They used medium machine guns and mortars in batteries as also a large number of light machineguns and a quantity of grenades All the attacks were repulsed After two hours fierce fighting the hostiles broke battle and ran helter skelter

It is estimated that 15 000 hostiles attacked Naushera in three waves About 2 000 of them were killed Vast booty was captured Indian casualties were 29 other ranks killed and 90 other ranks wounded

The Indian success at Naushera was followed up by an attempt to recapture Jhangar The decisive battle for the recapture of Jhangar was fought at Pirthal The hostiles who were entrenched on this hill put up a stiff fight but ultimately their resistance collapsed in the face of a determined attack by the Indian forces With the recapture of Jhangar the main land route leading into the Naushera valley was secured and the enemy s supply line disrupted

Meanwhile beleaguered and isolated Punch held out gamely in the face of repeated enemy assaults An airstrip was constructed in Punch and supplies were flown in to feed not only the Garrison but thousands of refugees taking shelter in that town

But Jhangar was continuously menaced with artillery fire from the enemy On the night of July 3 the shelling of Jhangar was more intense than usual Some 600 shells were pumped into the Indian positions in Jhangar One of them killed Brigadier Usman the hero of the Battle of Naushera He was the first Indian Brigadier to be killed in the Kashmir campaign

Winter Fighting

During the winter months the Indian Army in Kashmir fought two enemies Holding the raiders at bay was easy Throughout the winter months the raiders got no quarter Every attempt by them to break through or bypass Uri was beaten back resolutely But the Indian Army had to put up a grim and heroic struggle against the elements

A majority of our troops had never seen snow before Nor were they armed with special snow fighting equipment With the blocking of the only land route to Srinagar by snow and the stoppage of the air service the supply situation became acute

In many countries troops are given special training for snow fighting and issued special equipment In the peculiar circumstances in which Indian Armed Forces were flung into battle in Kashmir there was hardly any time to train or suitably equip them for fighting in arctic conditions

The Indian Army s victory over the elements constituted a fresh chapter in its glorious history, already replete with feats of endurance and bravery Far from yielding ground to either enemy Indian troops in winter actually improved and consolidated their positions on the snow bound Uri front

During these difficult months the Indian Army in Kashmir largely remained on the defensive confin ing itse to long range reconnaissance and offensive patrolling Its battle against the elements was fought by lone piquets perched on snow clad mountains and by petrols venturing out into uncharted country breasting the blizzards and hailstorms

In the middle of January a party of 1 500 raiders moving along the north bank of the Jhelum concen trated on the other side of the Mahura power house intent on seizing or disrupting it

Our troops threw a steel cable across the 100 yard width of the Jehlum and with the aid of ropes and pulleys got across the river under cover of darkness Their heavy equipment and ammunition were ferried The column then fell on the raiders at dead of night Asleep and taken by surprise the raiders fled in dis order Among the killed was their commanding officer

An Indian patrol composed of young men of 18 and 19 who had just passed out of Boys Companies launched a surprise attack on a raider held feature north of Uri and expelled the hostiles after a bayonet charge The raiders counter attacked using 1 000 rounds of small arms ammunition and fifty 3 nch mortar bombs but were repulsed by the youths with the aid of artillery

After the engagement 92 enemy dead were counted Twenty of them wore regimental badges of the Frontier Force Regiment of the Pakistan Army The number of wounded was also heavy The boys had been sent out with instructions only to reconnoitre the enemy position on the feature but they were so enthusiastic that they went further and finished up with a bayonet charge which gave the Indian forces possesion of the feature

The raiders made repeated attempts to storm our piquets Every time they were beaten back Failing either to break through or bypass Uri the raiders advanced over the track linking Muzaffarabad with Tithwal and made for Handowar in the northern approaches to the Srinagar valley An Indian column met them there and dispersed them recapturing some of the villages that had fallen into their hands

In March as winter began to wane the activity of Indian troops was gradually stepped up The raiders were in occupation of a series of high commanding features around Uri and north of Mahura and con stituted a threat to our positions Two columns set out from Indian bases on a feature hopping expedition

Covering 30 arduous miles from their starting points the two columns played havoc with the raiders lines of communication to their hill piquets isolating them from their bases

The brunt of the battle against winter was however borne by Indian Army drivers and sappers In the past for four winter months of the year the Banihal Pass choked with snow used to remain closed to traffic The Madras Sappers and Miners valiantly strove to keep this pass the bottleneck of the Jammu Srinagar road clear of the snows The drivers worked overtime and without rest in order to bring supplies to the snow besieged city

Fourteen miles on either side of the 150 yard Banihal tunnel was a veritable death trap The tunnel was repetedly sealed off at either end by 30 feet of snow A handful of sappers and miners armed with bull dozers picks and shovels hardy drivers and ill clad local labourers were the heroes of this battle

On occasions the sappers worked from seven in the morning till two next morning without rest pulling out vehicles buried in the snows They suffered from sore feet frostbite and chilblain

Thanks to their efforts from December 22 to the end of March three convoys consisting of a total of 300 vehicles got through to Srinagar Each time however a few vehicles at the tail end of the convoy got stuck and remained buried in the snow The snow fell so thick and fast that not even a 15 foot long pole pierced into the snow mounds could touch the top of the buried vehicles

The snowing started on December 22 and by December 25 the road on the Banihal stretch was impassable A convoy of 25 three tonner lorries carrying 200 refugees and supplies was caught in the snow some inside the tunnel others outside After enduring much hardship and with some loss of life the refugees were rescued and marched beyond the danger zone a few days later A similar fate overtook another convoy of 13 vehicles in February

The Banihal Pass was opened once again in the middle of January and one convoy passed through each way For one month thereafter the pass was again blocked It was opened for the second time on February 20 and was sealed off again on February 22 It reopened on March 5 to close immediately after The pass finally cleared on March 28

Though the winter battle had been won the melting snows brought forth a new problem for the Indian Army engineers and lorry drivers to contend with While the Banihal Pass was cleared of snow the 200 mile tenuous road hewn in the side of the Himalayan ranges was now plagued with landslides Large chunks of mountain with trees boulders and all slipped on to the road and completely obliterated it

The sappers and the pioneers were kept busy sweeping these chunks of mountain out of the way as supply convoys were held up

While it froze and covered the Kashmir valley with a white mantle winter appeared in a different guise in Jammu Here it was all slush and quagmire created by the winter rains which impeded mobility and made life miserable for our troops Abnormal rains even swept away bridges along the life line from Pathankot and constricted supply to the troops

Thus while the Kashmir front hibernated the activity in Jammu intensified thanks to the advantages enjoyed by the enemy on this front in the shape of shorter better and more numerous lines of communication

As against the single 75 miles road that the Indian army possessed from Jammu to Naushera which was repeatedly rendered unusable by the winter rains the raiders relied on shorter lines of communication

consisting of the first class all weather Jhelum Mirpur road and Sialkot Jammu road, besides numerous other tracks to supply their troops

Stung by their initial reverses against the Indian Army and enjoying as they did many material advantages the hostiles in Jammu occupied themselves during the winter months in spirited counter attacks In their own territory they were well entrenched while our troops remained on the defensive owing to the limitations imposed by winter

Winter also gave our commanders for the first time some respite to think and plan and regroup Kept on their toes from the moment the troops landed in Srinagar on October 27, they were kept hurrying about plugging in leaks in the hastily prepared defences relieving encircled State Force garrisons and rescuing thousands of non Muslim refugees

Maj Gen Kalwant Singh GOC Jammu and Kashmir Force had to build up a fighting machine from scratch even while he fought a well prepared and resolute enemy Now he gradually geared that machine for planned offensive operations

Srinagar had been rendered safe The menace to the Pathankot Jammu line of communication had been effectively removed By a forward policy and the institution of a chain of piquets the Pakistan Jammu border ha been largely sealed off against nuisance raids from across Our forward positions had been con solidated The situation in the territory already held by the Indian Army had been stabilised and normal life resto ed

The task of looking after and administering relief to thousands of rescued refugees also largely fell to the lot of the Indian Army

A winter gave way to spring the back had been broken of all these problems and Gen Kalwant Singh now planned to move forward

The Indian Army in Jammu and Kashmir was now poised for an offensive

North Eastern Front

The raiders plans for the summer lay in the north easternly direction Losing all hopes of piercing the Indian Army s steel ring in the west at Uri and in the south west in Jammu they sought new adventures in the remote semi arctic barren districts of Baltistan and Ladakh

Between those districts and the Kashmir valley stood the gaunt forbidding Himalayan ranges with a few difficult fair weather snow covered mountain tracks serving as the only link Their very inaccessi bility made those districts safe for the activities of the raiders putting them beyond easy range of the Indian Army s attentions

The raiders projected summer campaign had three objectives aimed at dispersal of our forces—opening two more fronts one in the north via Gurais and the other in the north east via Zoji La and bagging as much territory as possible in Baltistan and Ladakh Gurais and Zoji La are the northern and north eastern gateways respectively to the Kashmir valley

All winter the raiders built up Gilgit their possession in the northern frontier area as the base for their summer campaign Columns of raiders moved down from Gilgit and infiltrated southwards and south eastwards

By January, the pressure on the small State Force garrison in Skardu increased The garrison commanded by Colonel Shar Jung Thapa and consisting of two companies held out pluckily against waves of attacks from the raiders Accompanied by a large number of refugees the garrison shut themselves up in the Skardu fort The raiders encircled the fort and bypassed it on their eastward movement towards Kargil and Ladakh

Repeated attempts from Srinagar to send relief to the besiedged Skardu garrison were foiled by the difficult nature of the country particularly in winter The relief columns had to trek along snow covered mountain tracks On the way the Muslim porters sometimes deserted and the columns were harassed by the enemy

Though neither reinforcements nor supplies in any appreciable quantity could reach Skardu the garrison ordered to fight to the last man and last round held on grimly

In the meantime bypassing Skardu the raiders overpowered another small State Force garrison at Kargil and then captured Dras and thus cleared the way to Ladakh and Leh its capital the coveted objective on the eastward drive

When the raiders infiltrated into the Ladakh district and skirmished with State Forces the threat to Leh became imminent The remnants of the State Forces dotted all over the Ladakh valley fell back on Leh to strengthen the defence of the town From Srinagar were sent two officers and 15 other ranks to prepare the defences of the town A party of Buddhist soldiers of the Indian Army had also been sent to Leh in February

On May 24 Air Commodore Mehar Singh undertook the most daring operation yet in his colourful career—a flight to Leh along an uncharted route at 23 000 feet and over the world s highest mountain ranges He flew without even oxygen Accompanying him on the flight was Gen Thimayya Mehar Singh landed on a rough improvised strip in Leh constructed by a Ladakhi engineer 11 554 feet above sea level

Studying the situation on the spot Gen Thimayya decided to fly in reinforcements immediately Two companies of Gurkhas were flown to Leh by the IAF in May and June

These measures were taken in the nick of time On July 11 1 000 raiders armed with a 3 7 howitzer launched an attack on the outposts of Leh The attack was repulsed As the pressure on Leh increased the demand for supplies and reinforcements became insistent and urgent Once again the difficulties of terrain and the winter conditions were the major obstacles

There were two land routes to Leh The one from Srinagar passed through the snow covered 11 578 foot high Zoji Pass and through Kargil Only 40 out of the 230 miles of the route was motorable The rest of the journey had to be performed on horse or on foot The route wends its way between and up and down bleak snow mantled mountains With Kargil in enemy hands this route was out of the question The second route to Leh was from Manali in East Punjab which was equally difficult and circuitous running over 200 miles through thick jungles and Himalayan ranges

Speedy help was the need of the moment IAF transport planes became once again the only resort Dakotas fitted up with improvised oxygen apparatus opened a ferry service between Sringar and Leh Landing on a strip 11 500 feet high was no picnic The aircraft kept their engines running while unloading and reloading for if the engines were switched off they might not restart at that altitude

The Leh garrison energetically built up its defences with the help of the supplies flown in by IAF Ladakhi Muslims and Buddhist volunteers were organised and trained into a local militia to fight side by side with the Indian and State forces

Almost simultaneously with their eastward drive the raiders moved down south from Gilgit into the Gurais valley and passing over the Razdhanagar Pass (11 586 feet) got to Traqbal overlooking Bandi pura in the Wular Lake region 35 miles north of Srinagar

The first air strike towards the north of Wular Lake came on April 28 1948 in the shape of a concen trated attack by Tempests on the enemy position in Traqbal which lies six miles north of the Lake and 14 miles south west of Gurais A large cluster of houses which formed the centre of enemy activity in that area were bombed and destroyed The discovery of this target was entirely due to the vigilance and eagle eye of a Tempest pilot who spotted fresh track marks on snow leading to these innocent houses Under difficult flying conditions sustained and effective offensive air raids were carried out until the capture of Gurais exactly two months later

Gen Thimayya in the meantime got ready to meet this threat from the north Soon after the devastating air strike which had driven the enemy out of Traqbal Army engineers started building on a jeep track to Traqbal 10 000 feet above sea level

The first jeep motored to Traqbal on May 21 mules and porters carried ammunition and supplies another eight miles to Razdhanangar where was established the base for our operations Two infantry battalions and a mountain battery were concentrated for the job Facing our troops and entrenched in the Gurais valley were five companies of the Frontier Constabulary 250 Chitral Scouts well armed and equipped and led by regular army officers including State Force deserters with intimate knowledge of the country

Gurais is a valley through which flows the Kishenganga dominated on either side by a series of ranges of the Himalayas running parallel to each other and nowhere below 11 000 feet with most of them snow covered all the year round D Day was June 25 The operation largely consisted of climbing up and wrest ing from the enemy a series of steep snow mantled features The process began with the capture of two Hills 12 857 feet and 11 978 feet high respectively and culminated in the conquest of the forbidding 14 218 foot high peak Kesar This peak was assaulted by Indian troops in a blizzard in the middle of the night

Wet and shivering the Indian Army troops kept up the momentum of their advance under a hail of machine gun and mortar fire and were in Gurais by June 28 Behind the capture of Gurais lies the story of phenomenal endurance and perseverance by the Indian Army troops and their engineers It was a mountain eers war fought in arctic conditions Indian troops were poorly clad for that kind of winter Fortyfive mules died in the cold and the mountain guns had to be man handled in blizzard and snow

The fleeing raiders left behind a trail of their dead The raiders also lost heavily in equipment and supplies The most precious booty captured by our troops was the Frontier Constabulary blankets Almost following on the heals of our advancing troops Indian Army engineers unrolled a jeep track from Bandipur to Gurais a distance of 42 miles within four weeks

In the north east the raiders penetrated the Zoji La and infiltrated into the Sonamarg valley The Patialas guarding this gateway to Srinagar reacted energetically They immediately engaged them and chas ed them beyond the Zoji La The Patialas mounted guard at the Zoji Pass by establishing piquets at 16 000 foot high peaks while a jeep track crept towards them from Sonamarg

On August 14 the Skardu garrison was at last overwhelmed and surrendered to sheer weight of numbers The State Force troops resisted till the last with no hope of either relief or victory

Ladakh Campaign

As the precious summer months were fading out the Indian Army had the satisfaction of securing the safety of the Kashmir valley against invasion from the north and the north east But two important jobs still remained outstanding

Both the tasks had to be accomplished before winter if a calamity were to be averted These were (*a*) reopening the road from Srinagar to Leh and removing the menace to the Buddhist district of Ladakh and (*b*) the relief of the Punch garrison which had gallantly held out for a year against repeated assaults and whose position was getting precarious under intensified pressure from the besieging forces

The Zoji Pass 64 miles north east of Srinagar which links the Kashmir valley with Ladakh is dominated by high peaks on either side and is about two miles long debouching into the Gumri basin

Indian troops effectively controlled the western approaches to the Zoji La but the raiders held three ridges around the pass These three ridges had to be cleared of the enemy before the Indian Army could advance towards Kargil an important junction of the raiders line of communication from north Ladakh

With plenty of time to choose their defensive positions the raiders had sited their weapons to cover the defile along which our troops would have to advance while on a sheer cliff known as North Ridge far down the centre they had mounted a mountain gun to command the whole pass

The first attempt to break through the Zoji Pass was made early in September While Patialas were ordered to hold to their positions flanking the Zoji La one battalion of Gurkhas was to carry out a diversion along a left hook to Dras via Botkulamgunj and a company of another Gurkha battalion setting out from Pahalgam was to demonstrate towards Suru Mahrattas and Jats were to carry out a frontal assault

The Gurkha battalion advancing to Botkulamganj came up against glaciers and found the tracks shown on the map non existent It had therefore to be withdrawn The Gurkha company demonstrating towards Suru encountered heavy opposition The main column captured a feature on the other side of the pass on September 6 It was however recaptured by the enemy The Indian column then advanced on a two battalion front

On the night of September 13 14 Mahrattas and Jats attacked two features They reached within 30 yards of their objective but were pinned down by heavy enemy fire The Indian column suffered very heavy casualties—one entire company was involved and on the following day fighting patrols were sent out to bring them out

The operation was called off when it was realised that enemy caves positioned on the side of cliffs could not be reached by the trajectory of our artillery nor could air support be effective in the circumstances There was also no room for manoeuvre The enemy was holding precipitious heights His positions on the edges of cliffs were difficult to climb

It was then decided that movement from our side was possible only by night or under cover of fire from tanks The first alternative was ruled out as the hours of the night would prove insufficient for the completion of the operation

The second alternative was workable if only the tanks could be brought up to this height and all the distance from Jammu The tanks could sit in the pass with impunity ignoring the enemy small arms fire and

blanket his bunkers with shells, while our infantry advanced But if tanks were to be brought, a road had to be constructed

The bold decision was taken In less than two months the Thangaraju road—named after Major Thangaraju who planned the project—from Baltal to Zoji La, was laid down At places the road had to be hewn out of sheer rock

From Jammu to Baltal seven Stewart tanks travelled a distance of 260 miles incognito and under strict secrecy They were covered with shrouds to conceal their identity On the way, the tanks negotiated the frail Ramban bridge From Baltal to Zoji La the tanks negotiated their way around slippery hairpin bends and up a gradient of 3 000 feet in four miles

D Day was October 20 Rain and snow on October 20 compelled postponement of the operation, and at one time it looked as though it could not be launched until the following spring November 1 was fixed as the last possible date for launching the operation because any delay beyond that date would have made stocking across the Zoji La impossible as the pass became blocked with snow in December

Fortunately the weather cleared up in time and under the natural cover of cloud the tanks moved out at 10 a m on November 1 It was snowing as the tanks mounted the Zoji La track From the jeep head the road constructed by our sappers meandered forward for two miles Whether any track existed beyond that point nobody knew

The tanks moved forward crossed Zoji La and gingerly stepped on to the no man s land in the Gumri basin Solely relying for guidance on air reconnaissance reports the tanks forged ahead through snowdrifts glaciers mountain streams and over boulders to reach the foot of Chabutra Hill

The enemy opened up a barrage of fire which recochetted harmlessly off the tank armour Then the tank guns barked and systematically destroyed about 25 enemy bunkers and seized full control of Gumri by midday Behind the tanks the infantry moved in without much opposition

The enemy was surprised and demoralised by the sight of the tanks in Gumri which he had never expected At 9 p m on November 1 Patialas under the command of Lieutenant Colonel Sukhdeo Singh set out from the Gumri basin Walking surreptitiously throughout the night a company of Patialas reached Machhoi and covered the enemy from behind

On finding themselves encircled on all sides the hostiles were completely demoralised Those who tried to flee were good targets for our riflemen others surrendered and saved their lives On the North Ridge our troops found a dismantled 3 7 howitzer The enemy was obviously trying to carry it in parts while running away to safety

Covering over ten miles of rugged terrain infested with enemy snipers the Patialas reached the Dras plain on November 15 The next day the Patialas celebrated Guru Nanak s birthday in Dras which was attended by Gen K S Thimayya GOC 19 Division The Patialas collected the children of the villages and distributed sweets to them

During the entire operation IAF aircraft gave close support to our marching columns and strafed enemy dug in gun and mortar positions on the mountain slopes on either side of the defile in Zoji La as troops pushed forward IAF aircraft also dropped thousands of leaflets on Dras and surrounding areas advising the local population not to abandon their homes

Continuing the mopping up of hostile pockets beyond Dras Indian troops on the morning of November 23 established positions at Kargil the important trade and communication centre situated on the track leading to Skardu in the north Dras and Srinagar in the west and Leh in the east

Meanwhile from the other side consolidating their positions in the Nubra valley Indian troops cleared hostiles from Khalatse, 50 miles west of Leh Khalatse situated at the track junction from Gilgit and Skardu in the north west and from Srinagar Dras and Kargil in the south west is the gateway to Leh

Now only 45 miles of tortuous snow covered mountain track lay between our troops in Kargil and those in Khalatse Moving along this track an Indian Army patrol from Khalatse established contact with Indian forward troops at Kargil on November 24 The Indian troops then busied themselves with combing out the region for hostiles

Thus the land link between Srinagar and Leh was established after nearly six months

In the meantime in the western front of the Kashmir valley the raiders made a herculean effort to pierce our defences at Tithwal Preceded by heavy shell fire hostiles over 2 000 strong launched a two prolonged attack on our forward positions south and south west of Tithwal on the morning of October 13 Indian troops went into action immediately and in the battle which lasted four hours they threw the enemy back inflicting on him heavy casualties

Later in the day after reinforcing themselves the raiders under cover of a heavy concentration of artillery and mortar fire mounted two more attacks accompanied by a diversionary attack from another point Our defences stood firm and the raiders went back losing more men Late that evening the raiders came for the third time This time they attacked our positions in the area south south west of Tithwal and were again repulsed

Having failed in their attempts to dislodge the Indians from their forward positions around Tithwal the enemy kept up a barrage of 25 pounders and 3 7 howitzers Up to 5 a m on October 13, the enemy had fired 3 000 shells and an equal number of mortar bombs This was one of the heaviest shelling that our troops had encountered in Jammu and Kashmir

The next day the enemy assuming that our troops had abandoned their positions again approached our forward piquets at 7 30 p m He was dispersed summarily

IAF aircraft gave close support to our troops during and after the attack and accurately engaged hostiles known gun positions and concentrations

"Cease Fire'

When the voluntary informal cease fire came one minute before midnight on New Year s Day the Indian troops in Kashmir were still fighting the cruel northern winter beyond Kargil struggling on their way to Marol another road junction from Gilgit and Skardu to the Ladakh valley in the south east

In Jammu the link up with Punch had been made firm and permanent Thus after 12 months of siege the gallant garrison had been relieved

The story of the defence of Punch is a saga of courage endurance and grim tenacity of purpose—of sheer will to survive in the face of overwhelming odds In this brilliant achievement the IAF shared the honours with Brig Pritam Singh s gallant men and the thousands of refugees living with them

For over a year wave after wave of well armed fanatics—at one time as many as three rebel brigades and five to ten thousand Pathans—supported by 25 pounders 3 7 howitzers and 4 2 inch mortars, lashed against the Punch garrison holding a tiny bit of ten square miles ringed by pine clad hills The enemy paid for their temerity by losing 2 628 killed and 3,876 wounded

The relief of Punch was accomplished on November 21 1948—exactly one year after the entry of the first Indian troops into Punch Punch was being garrisoned by Jammu and Kashmir State Forces when on November 21 1947 Lt Col (Later Brig) Pritam Singh led 1 para Kumaonis to Punch from Uri With them were 40 000 refugees The morale of neither the State Forces nor the refugees was high in the circum stances Completely cut off by the hostiles the only hope was an air link with the outside world For that an airstrip was needed Six thousand refugee volunteers men women and children worked day and night to complete a rough airstrip in a week s time

On December 8 Air Vice Marshal Mukherjee and Air Commodore Mehar Singh landed the first aircraft—a Beechcraft—at Punch On December 12 the first Dakota landed on the strip The IAF had now started Punching —a phrase coined by the boys of the air signifying rushing in urgently needed supplies and flying out refugees Among the most welcome gifts they brought was a battery of mountain guns

Punch s battle for survival took a turn for the worse when in March the enemy for the first time brought up 3 7 howitzers That put the airstrip directly under fire and Punch s window to the world was sealed off

It was then decided to put 25 pounder guns into Punch to neutralise the enemy s mountain guns On March 21 while enemy shells whizzed and whistled around them the Air Force landed the 25 pounders in moonlight One of the shells hit a Dakota Brig Pritam Singh himself who had gone to the airstrip to meet the gallant pilots was wounded in the leg but he carried on

With the aid of the 25 pounders the Punch garrison managed to push the enemy s mountain guns out of range of the airstrip and went over to the offensive By the third week of April the garrison had gone forward and captured the village of Kheri Dharamshal and with the extension of our perimeter Dakotas were able to resume the Punching operations in May

Thousands of refugees were evacuated by air Still there was not enough food to go round and raids were made into enemy held territory with the sole object of procuring grain for the starving population

The food stocks of the garrison were dangerously low The troops had to live on a 16 ounce ration of chapaties and dal There was no meat or vegetable Whatever milk ration was left with the troops was given by them voluntarily to the 6 000 refugee children who badly needed it Tinned milk and rations for refugees were also sent by Western Command and by the Government of India while Army doctors in Punch worked day and night combating disease and ill health among the civilians and the cattle

In August the hostiles launched their most determined attack yet on the Punch garrison They brought up field mountain and anti tank guns and during the month twice attacked in battalion strength each time Although held by only one company of our troops the attack was beaten off and a counter attack stabilised the situation

Thereafter the hostiles refrained from any large scale direct frontal attacks and resigned themselves to the less ambitious alternative of tightening the siege and starving the garrison to surrender They put

their field guns in commanding positions and contented themselves by shelling the airstrip On September 2 the airstrip was once again put out of action except for a few landings by Harwards But the Air Force Dakotas managed to drop supplies to the Punch garrison

It was cloudy and misty when on October 10 a formation of three Tempests piloted by Flight Lieutenant C G Devashar Flying Officer G B Cabral and Flying Officer D J Cannel took off to escort a Harward aircraft to Punch While Flying Officer A E Newby was preparing to land his Harward aircraft one of the protecting Tempest pilots noticed some flashes in the distant mist below Soon it became obvious that the enemy guns in the locality which had shelled Punch airstrip continuously for many days had opened up The Tempests which were waiting for this spot of luck went all out to plaster these gun positions Two suspected gun positions about nine miles south west of Punch were attacked and silenced A 25 pounder gun position located by the flash of the firing was similarly treated The area soon after was covered with a cloud of dust

One of the aircraft paid its exclusive attention to another gun position in the close proximity of the target attacked by another pilot thus silencing three out of the four spotted guns An hour later two more fighters visited the area and attacked the surviving gun position For days following this feat of superb observation and airmanship not a shell dropped on Punch

It was ultimately decided to establish a permanent land link with Punch whatever the cost The link up was accomplished in the third week of November with a comparatively small cost On the day of the link up there were still 10 000 refugees in Punch But with the liberation of 3 000 square miles of territory it was hoped that they would soon be able to resettle on land and look after themselves

As a result of the link up operation one entire division of the hostiles had been scattered to the winds Confirmed casualties of the enemy alone totalled 363 killed and 633 wounded compared with 13 killed and 62 wounded on the Indian side Fourteen hostiles were taken prisoners including one Subedar Major and one Jemadar The haul of arms was equally impressive

After the accomplishment of the Punch link up there still remained one job on hand for the Indian Army in Jammu Far behind our line in the Riasi district there existed several isolated pockets of hostiles These had to be mopped up

The State Forces were directed to take on this task On November 16 a State Force column moved into Riasi and captured Budil a hostile centre without much opposition and then the district was systematically combed out and the hostiles resistance was stamped out

In the first week of November the Indian Army was called upon to deal with one more threat from the raiders this time from an unexpected direction A lashkar of raiders was reported to have infiltrated through the Himalayan ranges east of the Banihal Pass and reached Zaskar

A column consisting of Indian troops and a detachment of Jammu and Kashmir militia was sent out from Kishtwar to meet the raiders After swift initial progress the column was held up for three days in the Umasi Pass (17 400 feet) by a snow storm Refusing to be halted by the elements the column struggled forward and surprised the raiders in their bivouac who broke up and fled without giving battle abandoning 22 mules loaded with supplies

Worsted all along the line the hostiles now gave vent to their discomfiture by resorting to sporadic and intense shelling of our positions At the same time they feverishly built up for a counter offensive As many as 400 vehicles were observed in one sector on a single day The hostiles also stepped up border raids

Their new tactics were to strengthen their positions for miles along the frontier and to swoop into the State territory and run back across the border after doing the maximum damage

Having accomplished their appointed tasks in Jammu and Kashmir the Indian Army was now again on the defensive While every enemy attack on our positions was resolutely repulsed Indian troops, under strict orders from the Army headquarters refrained from embarking on any fresh offensive operations But the Air Force kept a strict vigil over enemy territory Enemy concentrations were strafed around Kotli and Bagh with the object of dissolving their build up for offensive activity in western Jammu

On December 14 —while the cease fire was still under negotiation between India and Pakistan—the hostiles laid down the biggest artillery bombardment of the campaign on our positions around Naushera Between 11 15 a m and 8 p m that day the hostiles fired 2 500 shells into an area of seven miles radius of Naushera At the farthest point they picked on targets at Beri Pattan ten miles south east of Naushera

The shelling continued through the night with varying intensity and was resumed next morning Altogether the hostiles fired well over 5 000 shells in this bombardment Their targets included Beri Pattan Seri Naushera Notidhar Kaman Gosha Gurund Gala Kalal and the much shelled Chhawa ridge

The bridge at Beri Pattan was hit and our life line from Jammu to Naushera remained cut for two days Otherwise the damage done was surprisingly small in terms of human lives and military targets

Simultaneously Pakistan s Sherman tanks fired at our positions from an area two miles south west of Sadabad They were engaged and dispersed by Indian gunners IAF aircraft on reconnaissance also encountered heavy ack ack fire from 40 mm anti aircraft guns

Feats of Daring

The Indian Air Force played a magnificent part in the Kashmir campaign In the difficult mountainous terrain with almost non existent road communications the IAF s services proved invaluable whether as the medium of speedy transport or as air support to ground troops

Early in the summer of 1948 when the Indian Army was planning its new offensive it was decided that the enemy should be deprived of the use of the vital Domel and Kishenganga bridges which linked his forward positions with his main supply bases to the west The IAF was called upon to undertake this hazardous and delicate task The two bridges were well concealed by nature and well defended by heavy ack ack guns The task was accomplished in which Indian fighter pilots proved daring marksmen

As the front in Kashmir extended northwards to remote inaccessible areas the IAF s share of the fighting proportionately increased A column of reinforcements on its way from Manali via a tortuous route to Leh lost all contact with its base Two IAF tempests took off from Palam on contact reconnaissance sorties to locate and protect the missing body of men The aircraft flying through foul weather and over some of the world s most mountainous regions spotted our troops dropped messages and scouted the route ahead for any lurking enemy who might have attempted to ambush them

Bombing and strafing sorties were sent out over Gilgit and other subsidiary bases as well as the routes of advance of the enemy These bombing expeditions to the arctic north involved hazardous flying over lofty Himalayan ranges skirting the mighty Nanga Parbat itself The raids began in the middle of July and by the end of August reports indicated that the enemy s wireless stations and huts adjoining military barracks had suffered heavy damage IAF Tempests also bombed and strafed hostile concentrations in Skardu The airfield at Gilgit which hummed with activity was visited twice in two months and direct hits with rockets were obtained on barracks lying to the east of the airstrip

IAF fighter pilots on reconnaissance over enemy held territory in Kashmir observed a well maintained airstrip and a hangar at Chilas 40 miles south of Gilgit as well as movement of enemy troop concentrated in the fort at Chilas Two Tempests attacked the airfield with rockets and bombed and cratered the strip The timely sustained and systematic air operations over Chilas had a far reaching effect on the shape of future operations For reports had it that Pakistan was feverishly building up this air base with a view to using it for air attacks on Indian positions in Kashmir

The part played by the IAF in the battle for Punch is a saga of daring perseverence and improvisation

The Himalayan terrain unfamiliar climate and a complete lack of communications converted the operations to a logistical feat The Jammu Srinagar road and the Jammu Jhangar road were the only lines of communication available to the Indian Army The former road zigzagging its way through the Himalayan ranges had a limited capacity and was subjected to serious interruptions during the winter months The road to Jhangar was no more than a rough fair weather jeep track

The Indian rail head and Admin base for the operations was the third rate railway station at Pathankot woefully inadequate for the gigantic task it was suddenly called upon to undertake The road between Pathankot and Jammu was no more than a fair weather track cut up by numerous unbridged rivers and streams

The single tenuous 300 mile line of communication from Pathankot to Srinagar was taxed to its capacity to feed and supply the troops already in Kashmir a well as to meet the essential needs of the civilian population of the valley In the winter months even this road broke down choked with snow

The Admin staff pitted ingenuity against mechanical handicaps and produced marvels of improvisation IASC drivers worked over time to deliver the much needed goods at the front line sacrificing sleep rest and comfort the engineers worked day and night to provide new lines of communication

Inadequate transport in Kashmir was another problem With the approach of winter snow and rain descended on the State The Banihal Pass was blanketed with snow and the road connecting Pathankot and Jammu was cut up Motor transport vehicles equipped with skid chains moved forward perilously braving heavy rains on the road and severe blizzards at Banihal There were accidents and casualties but the flow of supplies continued uninterrupted

The most spectacular IASC story of the campaign was the maintenance of Leh The IAF which made history by landing supplies at Leh could meet the barest requirements of our armed forces at this isolated point It was the IASC which had to carry supplies for a distance of 203 miles on thousands of hired ponies and porters over the bleak Himalayan ranges and along tricky tracks

The war against disease and epidemics in Jammu and Kashmir was the Indian Army s Second Front The Indian Army Medical Corps did not confine their activities to extracting bullets from war casualties and healing the wounded and sick among the Indian troops Wherever they went they also took on the task of looking after the health of the local civilian population Hygiene sections and anti malaria units of the front line teams prevented diseases by maintaining a high standard of sanitation and checking the spread of diseases from local inhabitants to the members of the fighting forces This was one of the reasons why the Indian Army was popular among the Kashmiri villagers The Indian Army symbolised sense of security apart from bringing to the villages free medical aid and high standards of health and sanitation and opportunities for lucrative trade

The cease fire came into force at midnight on the first day of the year 1949, which brought to a close a 15 month gruelling campaign for the Indian Army Launched within a month and a half of the country s freedom under every imaginable handicap and without any planning whatsoever the Kashmir campaign was a fiery test for free India s Armed Forces

To their former skill and traditional efficiency was now added a new patriotic fervour The combination enabled the Indian officer and soldier to work veritable miracles Mere efficiency was not enough a high sense of patriotism alone could have conquered the formidable obstacles that the Indian troops met in Kashmir and Jammu

They exploded many a copy book theory of logistics and contributed new and valuable chapters to their war experience On airstrips which had been pronounced by experts as unfit for fighter aircraft to operate from IAF pilots landed Spitfires and Tempests and took off Over roads and bridges declared impassable for heavy military vehicles tanks moved and went into action

At Zoji La when the raiders reported back to their headquarters that they were being attacked by tanks the Commander—according to an intercepted enemy wireless signal—declared it impossible and disbelieved his troops Indian Army roads snaked their way close on the heels of our troops up hill and down dale

When the Cease fire came the Indian Army had the satisfaction of laying a ring of security around the State of Jammu and Kashmir

When the raiders were sent down the Domel road in October 1947 Srinagar was their supreme objective Fourteen months later after all the expenditure of blood and treasure they were as far away from obtaining that objective as ever

The Indian Army s steel ring around the Kashmir valley was now complete and secure The raiders had been chased out of the north eastern district of Ladakh In Jammu they had been pushed back very fast until they found themselves desperately clinging to a strip of border territory in the west



THE two nation theory which was the genesis of the division of India and which caused the catastrophe of 1947 had a humble origin

In January 1933 a group of four Muslim students of Cambridge University published a pamphlet under the florid title Now or Never The pamphlet written with the passion and intolerance of youth demanded a separate home land for Indian Muslims who were described as a separate nation The prime mover in the affair was Ch Rehmat Ali an undergraduate of the University

Earlier in 1930 Dr Iqbal while presiding over the Annual Session of the All India Muslim League had said I would like to see the Punjab N W F P Sind and Baluchistan amalgamated into a single State Self government within the British Empire or without the British Empire the formation of a consolidated North West Indian Muslim State appears to me to be the final destiny of the Muslims at least of the North West India But what Iqbal said did not imply the carving of an absolutely autonomous State for Indian Muslims Writing about it Edward Thompson who had earlier attributed the idea of Pakistan to Iqbal and had been corrected by the poet says in his book Enlist India for Freedom

he set my misconception right After speaking of his own despondency at the chaos he saw coming on my vast undisciplined and starving land he went on to say that he thought the Pakistan plan would be disastrous to the Hindu community disastrous to the Muslim community But I am the President of the Muslim League and it is therefore my duty to support it After Iqbal s death his name and prestige were exploited by the protagonists of the Pakistan idea to bolster their dogmas

Ch Rehmat Ali propounded the idea that the Punjab N W F P Kashmir Sind and Baluchistan should be amalgamated into an independent unit to be called Pakistan This was dismissed at the time as

chimerical and impracticable by representative Muslim leaders like Zafrulla Khan Dr Khlifa Shujaud Din Yusuf Ali etc It is generally believed that Ch Rehmat Ali was acting under the promptings and with the funds of India Office Despite the fact that the Muslim Delegation to the Round Table Conference and the witnesses examined by the Joint Parliamentary Select Committee in 1933 neither espoused nor even took interest in the Pakistan idea the British Conservative Party and its Press highlighted it in every possible manner and made it out to be a development of the gravest import * The Pakistan view of Muslim politics however remained confined to a handful of young Muslim students and Chaudhary Rehmat Ali did nothing further except that in July 1935 he circulated a fresh four page leaflet from another Cambridge address

The Government of India Act 1935 made major concessions to the Muslim community and it was felt that the factors that had stood in the way of settlement between the Congress and the dissident Muslim section had been removed In 1936 the All India Muslim Conference under the leadership of Mian Fazli Husain sponsored a new non communal economic programme for all communities There were indications that efforts to bring about settlement and harmonious relations were bearing fruit But at this stage the All India Muslim League under the presidentship of M A Jinnah decided to step aside and to gather together extremist elements among the Muslims In July 1936 Mian Fazli Husain died suddenly and this left the field open for Jinnah and his Muslim League

The elections of 1937 gave a thumping victory to the Congress The programme of economic and social reforms which it was pledged to implement threatened to wean away Muslim masses from the fold of the extremists The League was alerted Jinnah who till a few years back used to ridicule the Pakistan scheme and who had described Chaudharv Rehmat Ali as an irresponsible person now grabbed the idea and without explanation or reasoning became its most uncompromising protagonist

The Muslim League had a windfall in the discontent caused by the official celebration of Gandhi Jayanti and Tilak Day the hoisting of the Congress flag on public buildings and schools the use of Criminal Law for the prevention of cow slaughter by a Provincial Congress Government the controversy over the Chandur Biswa Murder case and the appointment of Congress Muslims who did not have the support of Muslim legislators as ministers The League fomented this discontent and launched virulent propaganda from the pulpit the public platform and the Press against the Congress decrying it as a Hindu body Pamphlets and books were written to rouse passions The Pirpur Report Fazl ul Huq s Muslim Sufferings under Congress Rule the Shareef Report the Kamal Yar Jung Education Committee Report and similar other publications incensed the Muslim masses against the Hindus with whom they came to associate the Congress Governments Jinnah preached relentlessly the doctrine of hate and fear to the inflamed people and communalism invaded and shattered the entire field of Hindu Muslim relations so laboriously built bv saner minds

The League succeeded in its objective The Muslim mind came to be dominated by the idea of a separate State There could be no compromise with the Congress hence there must be division of the country

In 1938 the Sind Provincial Muslim League passed a resolution to the effect that It is absolutely essential in the interests of abiding peace of the vast Indian continent and in the interests of unhampered cultural development, the economic and social betterment and political self determination of the two nations known as Hindus and Muslims that India may be divided into two federations viz Federation of

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*Pakistan by Dr Shaukat Ullah Ansari page 8

Muslim States and Federation of non Muslim States In 1939 the Working Committee of the League elaborated it by saying The developments that have taken place especially since the inauguration of the provincial constitution based on the socalled democratic parliamentary system of government and the recent experience of over two years have established beyond any doubt that it has resulted wholly in a permanent communal majority and the domination by the Hindus over the Muslim minorities whose life and liberty property and honour are in danger and even their religious rights and culture are being assailed and annihilated every day under the Congress Governments in various provinces While Muslim India stands against exploitation of the people of India and has repeatedly declared in favour of a free India it is equally opposed to domination by the Hindu majority over the Mussalmans and other minorities and vassalisation of Muslim India and is irrevocably opposed to any federal objective which must necessarily result in a majority community rule under the guise of democracy and parliamentary system of government Such a constitution is totally unsuited to the genius of the peoples of the country which is composed of various nationalities and does not constitute a national state The main resolution of the Lahore session of the League in 1940 ran as follows

> While approving and endorsing the action taken by the Council and the Working Committee of the All India Muslim League as indicated in their resolution dated 27th of August the 17th and 18th of September and 22nd of October 1938 and the 3rd February 1940 on the Constitutional issues this session of the All India Muslim League emphatically reiterates that the scheme of Federation embodied in the Government of India Act 1935 is totally unsuited to and unworkable in the peculiar conditions of this country and is altogether unacceptable to Muslim India
>
> It further records its emphatic view that while the declaration dated 18th October 1939 made by the Viceroy on behalf of His Majesty s Government is reassuring in so far as it declares that the policy and plan on which the Government of India Act 1935 is based will be reconsidered in consultation with the various parties interests and communities in India Muslim India will not be satisfied unless the whole constitutional plan is reconsidered *de novo* and that no revised plan will be acceptable to the Muslims unless it is formed with their approval and consent
>
> Resolved that it is the considered view of this session of the All India Muslim League that no constitutional plan would be workable in this country or acceptable to the Muslims unless it is designed on the following basic principles namely that geographically contiguous units are demarcated into regions which should be so constituted with such territorial readjustments as may be necessary that the areas in which the Muslims are numerically in a majority as in *the north western and eastern zones of India should be grouped to constitute Independent* States in which the cosntituent units shall be autonomous and sovereign and that adequate effective and mandatory safeguards should be specifically provided in the constitution for minorities in the units and in the regions for the protection of their religious cultural economic political administrative and other rights and interests in consultation with them and in other parts of India where the Mussalmans are in a minority adequate effective and mandatory safeguards shall be specifically provided in the constitution for them and other minorities for the protection of their religious cultural economic political administrative and other rights and interests in consultation with them

The cleavage was final and unbridgeable All talk of reservation and weightage in services representation in legislature safeguards and guarantees for Muslim interests was put a stop to The idea of a composite State was dropped for ever Jinnah declared unequivocally The goal of the All India

Muslim League is that we want to establish a completely independent State in the North west and eastern zones of India with full control on defence foreign affairs communications customs currency exchange etc We do not want under any circumstances a constitution of an All India character with one Government at the Centre We will never agree to that If you once agree to it let me tell you that the Muslims would be absolutely wiped out of existence We shall never be a feudatory of any power or of any Government at the Centre so far as our free national home lands are concerned Muslim India will never submit to an All India constitution and one Central Government The ideology of the League is based on the fundamental principle that the Muslims of India are an independent nationality and that any attempt to get them to merge their national and political identity and ideology will be resisted The policy of the League is to endeavour to promote goodwill and harmony among other peoples on the basis of equality, fair play and reciprocity This can be secured by agreement with other peoples and parties and states with the object of achieving collective security and orderly development of the people living in different states as well as among the different free states as members of a comity respecting each other s rights *

The demand for Pakistan ripened into mass hysteria during the six years that followed the Lahore Resolution of the Muslim League In 1946 the British Labour Government sent Lord Pethick Lawrence Secretary of State for India Sir Stafford Cripps and Mr A V Alexander to India to use their utmost endeavours to help her to attain her freedom as speedily and fully as possible The Cabinet Mission assisted by the Viceroy strove for two months to find a workable compromise But it failed It had therefore to make its recommendations independently of the parties concerned

The Pakistan scheme in all its forms as put before the Mission was rejected ' Pakistan as the Muslim League would call their State would not consist solely of Muslims It would contain a substantial minority of other communities which would average over 40 percent and in certain wide areas would even constitute a majority as for instance in the City of Calcutta where the Muslims form less than one third of the population Moreover the complete separation of Pakistan from the rest of India would, in our view, gravely endanger the defence of the whole country by splitting the army into two and by preventing the defence in depth which is essential in modern war We therefore do not suggest the adoption of this proposal

The Cabinet Mission recommended a three tiered political structure the Union Government consisting of an Executive and Legislature empowered to deal with essential subjects like External Affairs, Defence and Communications Federations of such provinces as may like to join with one another for purposes of administration and Provinces with complete internal autonomy except in respect of subjects reserved for the Union or Central Government The League at first accepted the Scheme but later rejected it It had recourse to Direct Action Killing of Hindus and burning of their properties started in Calcutta on 16th August 1946 For three days the Leaguers wallowed in murder loot and rape Then came the retribution The Hindus retaliated Calcutta was a veritable hell for a fortnight Similar orgies took place in Bombay Noakhali and Bihar Tens of thousands of persons were massacred and property worth several crores of rupees was destroyed

In the meantime the Cabinet Mission Scheme which had been accepted by the Congress had taken the first strides A Constituent Assembly had been elected and an Interim Government formed with Pandit Nehru as the Vice President of the Viceroy s Executive Council The League turned another somersault It decided to join the Interim Government But that did not cause it any compunction against pursuing openly the Direct Action politics on which it had launched The two groups in the Government i e the

* Inside Pakistan by K L Gauba pages 31 32

To each cultivator with a family of average size a plough area, i.e. land that a pair of bullocks could command, was given. If a family had more than two adult workers, additional allotment was made according to a scale fixed for the purpose. Land was given only to groups and individual members divided it among themselves. This scheme of temporary allotment was designed to ensure quick distribution of evacuee land, to enable refugees from particular areas to remain as closely together as possible in the hour of their misfortune, and to make for pooling of resources for harvesting the standing crop and for sowing the new one. These objectives were largely fulfilled. By the end of March 1948 a total allotment of 21,96,466 acres to 2,00,233 families was recorded.

Under the temporary allotments scheme land was given to all cultivators irrespective of their status or the rights enjoyed by them in the districts from which they had come. This led to misgivings about the intentions of the framers of the scheme who were suspected of taking advantage of the situation to project a collectivist experiment. Besides the conservatism of human nature which fights shy of new ideas and re[illegible] patterns insisted that the old order be restored as far as possible.

The policy of resettlement, therefore, came to be directed towards distributing evacuee lands among the refugee landholders and it was felt that rehabilitation of other rural refugees would be effected in the natural process of reproducing the pattern of land rights of the immigrants. This set bounds to the rural rehabilitation scheme. But though now defined, the work did not diminish in magnitude or complexity.

During the first few months of 1948 all evacuee lands in East Punjab and East Punjab States were pooled for purposes of distribution. The Governments of East Punjab and West Punjab came to an agreement with regard to preparing copies of revenue records on a common basis for each other's use. The exchange of records was completed in a few months beginning with November 1948.

For fifteen months thousands of revenue officials of East Punjab and PEPSU laboured on the land claims of the refugees in the Rehabilitation Secretariat at Jullundur which looked like a tented township. Each claim was verified against the revenue account received from Pakistan. No less than 6,17,401 claims were scrutinized and assessed. The claims of every owner in respect of holdings owned by him at different places were then consolidated with a view to making a single allotment to him. This was a very difficult but necessary task. Determined effort at last bore fruit, and material was ready for telescoping the consolidated claims into actual allotments.

Against 53 lakh acres of cultivated land left in West Pakistan only 38 lakh acres were available in East Punjab and East Punjab States. The situation was made still more difficult by the fact that the irrigated area abandoned was immensely larger than what was at hand for distribution. Compared with 43 lakh acres of irrigated land claimed—of which 25.53 lakh acres were perennially irrigated—only 13 lakh acres of evacuee holdings were classed as irrigated, out of which not more than 4.33 lakh acres received perennial irrigation. Again the land abandoned was generally much superior to the land available for distribution. The work of adjusting the claims against the resources was therefore a very difficult one and required an ingenious formula for its successful completion. The formula was invented by S. Tarlok Singh, Director General Rehabilitation, Punjab.

The formula has come to be known as the Standard Acre. The quasi-permanent scheme of settlement according to which the claims of displaced landholders were settled equitably became possible only through the valuation unit of Standard Acre. How it was arrived at and what it means is explained by its author as follows:

Trial and error the yield of wheat assumed at settlement for each class of land in each assessment circle in different districts of West Punjab, East Punjab and PEPSU was



To each cultivator with a family of average size a plough area, i e , land that a pair of bullocks could command was given If a family had more than two adult workers, additional allotment was made according to a scale fixed for the purpose Land was given only to groups, and individual members divided it among themselves This scheme of temporary allotment was designed to ensure quick distribution of evacuee land to enable refugees from particular areas to remain as closely together as possible in the hour of their misfortune and to make for pooling of resources for harvesting the standing crop and for sowing the new one These objectives were largely fulfilled By the end of March 1948, a total allotment of 21 96 466 acres to 2 00 233 families was recorded

Under the temporary allotments scheme land was given to all cultivators irrespective of their status or the rights enjoyed by them in the districts from which they had come This led to misgivings about the intentions of the framers of the scheme who were suspected of taking advantage of the situation to project a collectivist experiment Besides the conservatism of human nature, which fights shy of new ideas and rejoices in repetition of older patterns insisted that the old order be restored as far as possible

The policy of resettlement therefore came to be directed towards distributing evacuee lands among the refugee landholders and it was felt that rehabilitation of other rural refugees would be effected in the natural process of reproducing the pattern of land rights of the immigrants This set bounds to the rural rehabilitation scheme But though now defined the work did not diminish in magnitude or complexity

During the first few months of 1948 all evacuee lands in East Punjab and East Punjab States were pooled for purposes of distribution The Governments of East Punjab and West Punjab came to an agreement with regard to preparing copies of revenue records on a common basis for each other s use The exchange of records was completed in a few months beginning with November 1948

For fifteen months thousands of revenue officials of East Punjab and PEPSU laboured on the land claims of the refugees in the Rehabilitation Secretariat at Jullundur which looked like a tented township Each claim was verified against the revenue account received from Pakistan No less than 6 17,401 claims were scrutinized and assessed The claims of every owner in respect of holdings owned by him at different places were then consolidated with a view to making a single allotment to him This was a very difficult but necessary task Determined effort at last bore fruit, and material was ready for telescoping the consolidated claims into actual allotments

Against 53 lakh acres of cultivated land left in West Pakistan only 38 lakh acres were available in East Punjab and East Punjab States The situation was made still more difficult by the fact that the irrigated area abandoned was immensely larger than what was at hand for distribution Compared with 43 lakh acres of irrigated land claimed—of which 25 55 lakh acres were perennially irrigated—only 13 lakh acres of evacuee holdings were classed as irrigated out of which not more than 4 33 lakh acres received perennial irrigation Again the land abandoned was generally much superior to the land available for distribution The work of adjusting the claims against the resources was therefore a very difficult one and required an ingenious formula for its successful completion The formula was invented by S Tarlok Singh Director General Rehabilitation Punjab

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taken as the starting point Wheat is a well nigh universal crop for which the requisite yield data was available in settlement reports Where wheat was of relatively lower importance a rough equivalent was established between wheat and the local cereal crops A soil valuation key setting the value at so many annas against so many maunds of yield per matured acre assumed at settlement was adopted The key gave an approximate value according to conditions prevailing at the time of settlement This was then considered with reference to changes in cropping developments, in irrigation and other factors such as higher cost of production on land irrigated by wells The final valuation of each class of land in each assessment circle was fixed after examining other comparative data and detailed discussion Sixteen annas of value were described as a standard acre Thus two acres of land valued at eight annas make one standard acre As a unit of value, therefore the standard acre can represent different areas according to the type and situation of the land valued Similarly full ownership rights were rated at sixteen annas and allownace was made for lesser rights such as those of occupancy Something like 2500 valuations of land in about 400 assessment circles and groups of villages and a very large number of different classes of rights under Colony and non Colony tenures were successfully dealt with through the standard acre Calculations were generally made to 1/64th of a standard acre

After all the verified claims and the available resources had been computed in terms of the standard acre it became easy to decide on the scale to be adopted for making land allotments Claims aggregating to 39 35 131 standard acres had to be accommodated within the 24 48 830 standard acres that could be found for allotment There was a shortage of 38% and this had to be shared by *all the claimants The broadest shoulders must bear the heaviest burdens* and the scheme of graded cuts which was finally approved demanded heavy sacrifices from the bigger landed interests More than 80% of the claimants had owned less than 10 standard acres each and only 2 per cent had possessed holdings larger than 60 standard acres The small holders had to be shown the maximum consideration while the farmers holding *between 10 and 50 standard acres who formed the backbone of the* Punjab peasantry, could not be sacrificed The scale of graded cuts which was evolved after careful deliberation was as follows

*Grade (Standard acres)			Rate of cut	Net allotment at maximum of grade (Standard acres)
Up to 10			25%	7½
More than	10 but not more than	30	30%	21½
	30	40	40%	27½
	40	60	55%	36½
	60	100	70%	48½
,	100	, 150	75%	61
	150	200	80%	71
	200	250	85%	78½
	250	500	90%	103½
	500	1 000	95%	128½

Quoted from Rural Settlement in Punjab by Tarlok Singh

Above 1 000 standard acres an allottee received 50 standard acres for every thousand abandoned by him This meant for instance that a displaced landholder who had abandoned 4 000 standard acres could get only 326½ The cuts were based on practical considerations and had no political or reformist objectives Nevertheless they put an end to the large holdings which were a conspicuous feature of rural life in West Punjab

The quasi permanent scheme of resettlement had to reckon with the temporary allotment that had taken place earlier It would not have been wise to set the whole population moving again from district to district From the beginning a general principle had been laid down that refugees of common origin should be settled in the same district as far as possible and that colonists who had originally gone from East Punjab to settle in the colony areas should be received back in their home districts This principle continued to be the guiding factor in making allocations under the quasi permanent scheme If a person was an allottee under the temporary resettlement he was allowed to remain in the same district unless the new allocation scheme provided for his settlement in another district—which generally happened only very seldom To secure further social cohesion elaborate rules were drawn which allowed close relations to be treated as a single group and to be allotted land according to the grade in which the major portion of their area was situated Widows under certain conditions were permitted to take land with their parents or in laws or other near relations To avoid dislocation of tenants at will who had for long period worked for evacuee owners it was made obligatory for refugee landholders entitled to 60 standard acres or more to take half their land in villages where a proportion of the area was tilled by resident tenants at will

About fifty villages were earmarked for allotment of land to displaced ex servicemen and serving defence personnel The evacuee gardens were reserved for allotment to displaced garden owners Claimants who had owned land in suburban areas or in the vicinity of towns were given suburban lands Every effort was made to make the resettlement process as independent of administrative discretion and as impervious to pressure from vested interests as possible One has to read the Displaced Persons Land Resettlement Manual by Tarlok Singh to realize the full magnitude of the work done and the planning and forethought given to it

A very useful scheme to step up the production of fruit in the State was introduced at the time of quasi permanent settlement This was the Scheme of Garden Colonies Twenty seven large blocks of evacuee land covering 20 000 acres were set apart for allotment to those who were interested in horticulture These blocks are situated in 11 out of the 13 districts in the State The total number of allottees is 1122 Each allottee has been given either a full unit of 20 acres or half the unit *i e* 10 acres This allotment is in lieu of the land which the allottee has voluntarily forgone out of his share Fifteen out of the 27 Colonies get canal water while the remaining are being provided with tube wells and water pumps The allottees in each Garden Colony are members of a Cooperative Society which looks after general management and ensures that gardening is carried on according to approved plans Three fourths of the area of each garden plot is to be devoted to fruit gardening the rest being meant for raising food grains fodder and vegetables The Garden Colonies represent a bold experiment in cooperative agriculture * The scheme is not merely horticultural scheme It is also a great social experiment which will be watched with interest by all those who are interested in progressive horticulture Intelligent and go ahead farmers have been selected and given equal areas so that cooperation is facilitated All the paraphernalia of modern agri horticulture like tube wells tractors power spraying machines etc will be available in the garden colonies and it is also hoped that most of these colonies will shortly be electrified If all these advantages are intelligently exploited the colonies will in the near future answer the vision of those who conceived them as centres of agricultural and

* Quoted from Rural Settlement in Punjab by Tarlok Singh

social advancement—sort of large scale model farms in the interior of the countryside (M S Randhawa Out of the Ashes)

Another scheme of far reaching influence launched alongside the rural rehabilitation scheme is the Rural Housing Scheme After the partition the evacuee villages were found in a dilapidated condition There were about 1800 villages in which 90% of the houses had fallen Opportunity was taken of this calamity to build model villages and model houses The Rehabilitation Department of the Punjab working in co operation with the Public Works Department prepared model lay outs based on the latest ideas on rural reconstruction Loans at the rate of Rs 300 per house in the case of allottees of 5 standard acres or more have been provided for in the scheme

Allotment of land to displaced landholders would have meant little without financial assistance to them for purchasing implements seed tractors and bullocks and for sinking wells and pumping sets A sum of Rs 4 78 12 000 has been disbursed as rural loans among 4 20 000 families of the settlers Further more the verified claims regarding rural houses have been placed at par with the claims in respect of urban immovable property This has had a very cheering effect on the displaced settlers

The Displaced Persons (Compensation and Rehabilitation) Act of 1954 passed by the Indian Parliament has taken rural rehabilitation work to its last stage of completion The Act provides for the conferment of proprietory rights on allottees of land under the quasi permanent scheme of resettlement Managing Officers have been appointed who go round the villages and issue permanent deeds on the spot to the allottees The work is proceeding apace and is expected to be completed in the near future

Urban Rehabilitation The rehabilitation of urban displaced population has in many respects presented an even more complicated problem than the resettlement of rural refugees The absorption of over 12 lakh urban refugees from West Pakistan in the predominantly agricultural economy of East Punjab was no easy matter

Urban rehabilitation turns upon the following principal points

1) Establishment of a new Capital
2) Expansion of a number of existing towns preparing new Cantonments and planning new towns
3) Leasing out industrial establishments and business premises abandoned by Muslims to refugees
4) Industrial training on a large scale
5) Expansion of industry
6) Organization of transport and
7) Provision of financial assistance and credit

Steps have been taken in regard to all these East Punjab has its new capital at Chandigarh Vacant plots of land in cities and their suburbs were leased to displaced persons for the construction of houses shops and business premises There were in all 1 36 397 evacuee houses of which only 1 15 522 were in allotable condition These were allotted To meet the shortage of houses several housing schemes were sponsored of which the scheme of New Townships and Cheap Housing Colonies was the most important 3 929 houses in 14 new Model Towns were built and 5226 plots laid out at a cost of Rs 329 lakhs The scheme was financed by a loan taken from the Government of India In addition 3184 eight marla houses

were constructed at a cost of Rs 64 32 lakhs in 14 new colonies for the low income groups For the lowest category of displaced population 5395 four marla cheap tenements were built in different towns at a cost of Rs 38 lakhs House building loans to the extent of Rs 122 lakhs have been advanced to those who pur chased sites in the new townships and colonies Another scheme to promote building of houses was launched recently under which interest free loans against the compensation due to displaced persons are being advanced Side by side with the allotment of houses evacuee shops and industrial establishments num bering 18 557 and 941 respectively were leased to the displaced businessmen To meet the shortage of business premises the Punjab Government have launched schemes of building Mandis and Shopping Centres which are expected to cost Rs 22 78 lakhs New Industrial Townships have been developed at Jullundur Ludhiana Sonepat Panipat Bahadurgarh and Jagadhri to provide further facilities for the rehabilitation of displaced industrialists The Punjab Government in cooperation with the Rehabilitation Finance Ad ministration of the Government of India have advanced loans to those who are setting up factories in these towns To provide training to displaced persons in various crafts Work Centres and Vocational Training Centres were started and trainees were given stipends of Rs 30 each These Centres are functioning success fully even now To displaced students loans and stipends were given on a liberal scale

Apart from the above schemes small urban loans amounting to Rs 2 4 crores have been advanced to 25 000 displaced persons and 776 cooperative societies

Resettlement of Refugee Women and Children The partition caused disruption and social degradation of thousands of women and children and the Government was faced with a very complex problem in regard to their resettlement Although it is common to speak of destitute women and children in a single phrase the problems presented by them are different

Women needing assistance may be grouped in the following classes —

(a) Abducted women who have been recovered from Pakistan In the case of such of those as had relatives and supporters eager to receive them the problem was one of restoration and of establishing the necessary contacts and in the meanwhile affording a measure of help A more long term and difficult problem was presented by women who had no re latives to go to or whom the relatives would not receive owing to social prejudice

(b) Women who were physically old and perhaps disabled and were without supporters

(c) Women belonging to respectable families who had lost their supporters and had no one to go to

There is a broad distinction here between widows and others between women with some education and those with little or no education between women with children and those without children and finally between women in the early and middle years and those past middle years Each category presented special problems and needed special methods

(d) Women rendered destitute and helpless and in immediate need of support and shelter, but capable within a short time of earning their living wholly or partially

(e) Women belonging to lower classes and possessing no education or training

The Wider Perspective The above is a brief account of the circumstances leading to the catastrophe of 1947 and of how millions of orphans of the storm were put on their legs again in East Punjab West Bengal too has had to face the same problems which confronted the Government of East Punjab But these were in terms of comparison milder It is usual to associate the refugee question with the migration that took place on India s North Western frontier Lest we should forget that the same

question had to be faced on the Eastern border it must be said without going into details that relief and rehabilitation measures had to be taken in West Bengal also to absorb the vast number that migrated from East Bengal The refugee problem was not a local incident and the entire country had to accommodate the over flow of immigrants from the Punjab as well as West Bengal Delhi received about a million displaced persons Many went to Bombay and others to southern and central Indian states The people who had migrated to India after burning their boats developed in course of time that hardihood and will to take roots wherever destiny or chance led them which come only from adversity They had waded through tragedies and miseries which destroyed all their conservatism and habit of resignation to circumstances When they found new moorings they were ready to begin life anywhere and on any terms that the changed conditions made possible Their chastened will and enterprising spirit has enriched the States in which they have settled

With the coming into operation of the compensation scheme the rehabilitation work has entered its last phase Applications for payment of compensation in respect of verified claims have already been invited by the Government of India When these claims are settled the displaced persons would have fresh resources for stabilizing their new careers Social readjustments have already taken place and the distinction between displaced persons and the native population of the Indian States has largely disappeared The misfortunes and the woeful story of the privations which they have suffered are already dim memories and the upsurge of fresh hopes has changed the perspective and horizons of life for them



AMONG the manifold problems that confronted India soon after the attainment of independence not the least formidable was that presented by the existence of innumerable States There were as many as 584 diverse States varying widely in size population revenue and level of efficiency of internal administration These erstwhile princely States enjoying more or less full powers covered an area of 6 45 000 square miles as against the 6 31 000 square miles of the former so called *British* Provinces Their population at the time of partition was about ninety one million whereas the population of the newly born Indian Dominion was roughly three hundred and eighteen million The States thus occupied 50 5% of Indian territory whereas their people comprised 23 8% of the Indian population In other words we may say that on an average one out of every four Indians lived in the States

These States ranged from Hyderabad (the biggest) with a population of 16⅓ million and an annual revenue of 100 million rupees to Bilbari with a population of twenty seven heads and an annual revenue of 80 rupees Most of these States were closely linked with the Provinces and their boundaries were juxtaposed with Indian territory They have been aptly called an almost continuous chain of land locked territories down the spine of India Despite their nominal independent entity they were so situated that independent of India they could have no export or import trade They were just islands within India and as such an all round co operation with India was an imperative necessity and also profitable for them Notwithstanding the pressure of such geographical and economic necessity notwithstanding their meagre revenues hardly sufficient to meet the expenses of administration and other necessary functions of the State the rulers did not give way easily

Long before India became free there was in the country a strong urge that these States especially the small States and estates which were an anachronism must go There was a powerful feeling that they were mere relics of the past feudal times to which the Princes had doggedly

clung For decades a struggle was also afoot for the abolition of these States as separate political entities Naturally therefore in a free India their separate existence was considered to be politically undesirable and economically impracticable Not only had the people raised their voice against the maladministration prevailing in these States but also the British Ruler were fully aware of the abject misery of the population of those areas In 1931 Lord Irwin the then Viceroy of India had warned the Princes to put their house in order and maintain a certain minimum standard of administration Almost simultaneously with this warning by the Viceroy the Political Department issued a circular asking all States with an annual revenue of less than two millions to form regional confederations The Princes did not respond to this suggestion kindly On the other hand in reply to this circular they submitted a memorandum in which they insisted that grouping of States should not be rigidly enforced It should rather be voluntary they argued nor should conditions or restrictions be imposed regarding the maintenance of police force or the administration of justice

In 1939 the States Peoples Conference at its Ludhiana Session passed a resolution strongly recommending the merger of small States with adjacent Provinces and the Union of other States into larger administrative units The resolution runs as follows —

It is the considered opinion of the Conference that only those States which have a population exceeding two millions of souls or revenue exceeding five million rupees can maintain the standard of administration necessary and suitable for being workable units for the purpose of uniting with the provinces in a scheme of a free and federated India and therefore all States not coming within the above category should be amalgamated either singly or by groups with the neighbouring provinces for the purpose of administration with suitable provisions for the reasonable rights and privileges of the rulers concerned, and this Conference therefore requests the National Congress to appoint a Committee of Inquiry for the purpose of finding ways and means to facilitate such amalgamation

Later on Lord Linlithgow exhorted the Princes on the same lines and pressed the smaller States to pool their resource so as to be able to discharge their obligations as modern States But the most important development affecting the Princely Order took place in 1946 when a merger scheme was put forth by the Crown Representative Lord Wavell This scheme envisaged the integration of smaller States with the neighbouring bigger ones with which they had geographical economic and political affinities The communique announcing this measure pointed out the slenderness of the individual resources of these States and the deplorable conditions owing to the geographical administrative and economic fragmentation Lord Wavell impressed on the rulers the urgent need of simplification of existing arrangements without which any kind of co-ordinated development of the countryside or any form of real progress was impossible He dwelt at length on the fact that the ultimate criterion of fitness for the survival of any State as an independent entity was its capacity to secure the welfare of its subjects and he regarded the proposed scheme for the merger of these States as the only suitable solution He was sure that the achievement of the conditions of administrative efficiency alone could justify the perpetuation of any form of hereditary rule

However despite a clear realisation of the urgent need for the integration of smaller States and an overhauling of their administrations nothing substantial was achieved in this direction during the British regim On the whole the attempt at grouping of the smaller States with larger States proved unhappy and unsuccessful The reason was not that such a plan for mergers and unions was not urgently needed or desired by the people but the way in which it was sought to be implemented proved irksome to both

In fact the people of the States were clamouring for the merger of small States with Provinces and the Union of other States into larger administrative units The All India States Peoples Conference which

met at Udaipur in 1946 and again at Gwalior in 1947 reaffirmed its Ludhiana Resolution of 1939 recommending the merger of small States with neighbouring larger ones or with adjacent Provinces

What were the factors which motivated the States Peoples demand not for independence but for a merger of the States with adjacent Provinces and for the formation of larger unions ? The people of the Provinces and the States had suffered alike from the waves of foreign invasions and the yoke of foreign domination The whole of the country was in varying degrees under the sway of the British Government

The one important factor that separated the Indian States from the rest of India was that the States maintained the traditional monarchical form of government This system of government did not function smoothly in most of the States where even the slightest semblance of efficient administration was lacking Indeed while in the Provinces experiments in self government were being made the States clung to their old despotic and autocratic rule The people of the States were mostly denied the benefits of administrative amenities such as secondary and technical education and medical treatment It was perhaps beyond the capacity of local resources to provide hospitals schools roads and other amenities But even in the case of the bigger units whose resources were not so thin the autocratic rulers were too indifferent towards their subjects to think in terms of their welfare In most States people enjoyed no personal liberties and the administration of justice was a mere farce All these and a host of other causes had prompted the people of the Indian States to organize themselves into an all India Body to fight for the merger of these States into the Provinces

The British Government set up a high power committee some 25 years ago to inquire into the matter of the Indian States This committee commonly known as the Butler Committee went into the difficult problem of the Indian States and the authors observed in the opening paragraph of their report —

Politically there are two Indias British India governed by the Crown according to the statutes of Parliament and enactments of the Indian Legislature and the Indian States under the suzerainty of the Crown and still for the most part under the personal rule of the Princes Geographically India is one and indivisible made up of pink and yellow The problem of statesmanship is to hold the two together

Geographically India was one and indivisible The territories of the Indian States were dovetailed into and closely intertwined with those of what was then British India The main part of the communications essential to the welfare of the country passed in and out of the territories of the Indian States A number of economic ties linked the States with the Provinces Moreover there were close ties of cultural affinity as also those of blood and sentiment which bound the people of the States and the Provinces together

The existence of the Indian States owed itself to the historical fact that unlike the Provinces the States had not been annexed by the British Government The institution of rulership had no doubt been a recognised feature of ancient Indian polity However the Princes their status and their possessions were all evolved during the first twenty years of the 19th century when the British Power in India was rapidly consolidating its position During this period the British practically completed the process of remoulding and crystallizing Indian States into the form in which the National Government found them at the time of the withdrawal of the British from India The British statement of their position with reference to the States may be summed up in the following extract from Sir John Metcalfe one of the principal architects of the British Empire in India —

Some power in India had always existed to which the peaceable States submitted and in return obtained protection against the invasion of upstart chief and the armies of lawless banditti the British Government now occupied the place of that protecting power and was the natural guardian of the weak States

The British pursued a policy of 'subordinate isolation' and by the end of 1819 they had managed to catch all the States in the wide net of treaties and engagements of subordinate cooperation. This protection guaranteed to the Princes by the British stabilised their position. This policy of the British Government soon developed into what has been commonly known as the doctrine of paramountcy. The British Government avowed openly by the end of the first quarter of the 19th century that they were 'the supreme guardians of general tranquility, law and right to maintain the legal succession.'

The subsidiary system of alliances secured for the Rulers their position and their possessions not only against any external attack but also against rebellion, revolution or any hostile opposition by their subjects. Such a guarantee had a very pernicious effect on the mentality of the Princes; it killed all incentive for good government. They no longer found it necessary to secure the goodwill of the people or to maintain efficiency of administration. The presence of the British force cut off every chance of a remedy for their misrule as it supported the Princes on the throne against any foreign and domestic enemy. The Princes slunk into indolence for they had been taught to depend upon strangers for their security. They became callous and avaricious for they had been assured that they had nothing to fear from the hatred of their subjects. In every State the British influence had the same baneful effect. The Princes throve despite their imbecility, their vices and their crimes. The result was that in most of the States there was a perpetual state of chronic anarchy. The revenues of the States were usually dissipated between the mercenaries of the camp and the minions of the court. The heavy and arbitrary taxes levied on the miserable subjects crushed them beyond recovery. The political system which was based on and was an evil off shoot of the Subsidiary System brought unprecedented corruption and tyranny in its wake. Conscientious statesmen were alarmed at this anarchic state of affairs and an Englishman of the eminence of Mill even advocated the abolition of these States.

The British had always retained their right of interfering in the internal affairs of the States. They had always considered it their duty to preserve peace and order and also professed to apply remedial measures if the general welfare of the people of a State was seriously and grievously affected by the action of its Government. It is therefore a sad reflection on the way the British conducted themselves in the matter of these States. They did nothing substantial to mitigate the evils which were the direct outcome of the protection which they so generously bestowed on the Indian Princes.

In the eighteen thirties the British Government however initiated a policy of annexation which had as one of its avowed objectives the mitigation of the evils of the Subsidiary System. It was in fact a clever move to disguise the British endeavours towards an expansion of their dominion in India. But the great revolt of 1857 demonstrated how greatly the States were instrumental in serving the British interests as a safety valve for the ignoble element of the Indian population. The course of events during the Mutiny showed the value of the yellow patches to the British Government. Most of the Indian States kept aloof from the general rising and some of them even extended effective assistance to the British in suppressing the revolt. The British gratefully acknowledged the role of the States as 'breakwaters in the storm which would have swept over us in one great wave.' It was realised that the States could play a most important part as a bulwark against the forces of Indian nationalism. This led to a radical change in the British policy towards the States. The British Government declared emphatically that they would no more pursue the policy of annexation as the only means of granting the blessings of civilised government to the suffering millions. On the other hand the Government issued Sanads to the Princes in order to reassure and knit the native rulers to the paramount power. Every possible effort was made to remove mistrust and suspicion. This new policy was motivated by the British aim of consolidating their power.

The vigorous operation of paramountcy after the Great Rebellion drove a wedge between the two parts of India The policy of hands off the Indian States reared up high walls of isolationism around the States Despite a geographical and cultural continuum despite the fact of the Provinces and States being one economic entity the States were more or less segregated from the Provinces

The problem of statesmanship in the case of the British might have been merely to hold the two Indias together but the real problem of statesmanship that confronted the Indian leaders on the eve of Independence was the welding of the States and the Provinces together to raise India to her full stature *Our leaders had fortunately the support of the great political organization the Indian National Congres* and of the States Peoples Conference for the Scheme of mergers which the late Sardar Patel ably put into practice after the transfer of power

The sovereignty of the British Crown was supreme in India The Indian Independence Act 1947 released the States from all their obligations to the Crown With the lapse of His Majesty s suzerainty over *the Indian States all treaties and agreements in force* at the date of the passing of the Indian Independence Act also lapsed automatically All that the Dominion Government got from the Paramount Power was a small proviso in the Act which provided for the continuance unless denounced by either of the parties of agreements between the Indian States and the Central and Provincial Governments in regard to specified matters such as Custom Posts and Telegraphs etc etc In effect the Indian States were free to become separate independent entities It was evident that if they so chose there would not only be a serious void with regard to the political relationship between the Central Government and the States but they could thereby also seriously retard the co ordination of all India policies in the economic and other fields

It was in these circumstances that the Government of India decided to set up a Department to conduct their relations with the States in matters of common concern Lord Mountbatten after consulting the representatives of the Congress the Muslim League and the Sikhs at an informal meeting recommended that it would be advantageous if the Government of India would set up a new Department possibly called the States Department This recommendation was considered by the Cabinet of the Interim Government at its meeting on 25th June 1947 and it was finally decided to create the States Department to deal with matters arising between the Central Government and the Indian States This Department was put in charge of Sardar Patel The new Department was organized in such a way and its work so distributed that at the time of partition it could be divided up between the two successive Governments without any dislocation

The unity of what remained as India after the partition was mo t essential not only for the political strength full economic development and cultural expression of the Indian people but also for facing the aftermaths of the vivisection of the country Sardar Patel issued a statement on 5th July 1947—the day when the States Department came into being—inviting the States to accede to the Dominion on the three subjects of Defence Foreign Affairs and Communications in which the common interests of the country were involved He exhorted the rulers in the spirit of all friendliness to come forth and lend their co operation in a joint endeavour to raise the country to a new greatness at that momentous stage in history Sardar Patel also sounded a note of warning that the alternative to co operation in the general interest of the country was anarchy and chaos which would overwhelm great and small in a common ruin if the States and Provinces were unable to act together in the minimum common tasks It is an accident said Sardar Patel that some live in the States and some in British India but all partake of its culture and character We are all knit together by bonds of blood and feeling no less than of self interest None can segregate us into segments no impassable barriers can be set up between us I invite my friends the Rulers of States and their people to the councils of Constituent Assembly in this spirit of friendliness and co operation in a joint endeavour inspired by common allegiance to our motherland for the common good of us all

Lord Mountbatten called a special meeting of the Chamber of Princes on 25th July 1947 when he advised the Rulers to accede to the appropriate Dominion in regard to the three subjects of Defence External Affairs and Communications He gave them an assurance that their accession on these subjects would entail no financial liability and that there would be no encroachment on their internal sovereignty

It seemed an almost impossible task to finalise the accession of the States within a reasonable period especially when there was no sanction of paramountcy behind the negotiations But the personal contact between the leaders of public opinion in India and the Rulers of States rendered possible by the withdrawal of the Paramount Power s previous policy of political isolation of States was very efficacious in peacefully tackling the whole problem Moreover the patriotic lead given by some of the leading Princes enabled the Rulers of most States to appreciate that it was both in the interest of Indian States and of the country that the States should become actively associated with the Dominion Government In fact on 5th of July 1947, the day on which Sardar Patel issued his historic statement exhorting the Rulers of the States for their whole hearted and unstinted co-operation the Jam Saheb of Nawanagar expressed similar enlightened ideas at a meeting of Kathiawar States in Bombay With laudable gusto and an inspiring sense of patriotism he declared We are Indians first and then princes Verily if India is free the Princes are free India is safe the Princes are safe If India is prosperous the States are prosperous If India is honoured every unit is honoured But if India is threatened what hope have the States ? If India goes under who survives ?

The noble appeals made by Sardar Patel as head of the States Ministry to the Rulers coupled with the enlightened lead given by such Princes as the Jam Saheb of Nawanagar went a long way in bringing home to the Rulers that the formula evolved by Sardar Patel for the accession of the States to India provided just the kind of relief they wanted, while allowing them the substance of their ancestral privileges They had the foresight to recognize the challenge which the dawn of Freedom would present on 15th August 1947 The movement launched by the States People had made rapid strides not only in numbers but also in consciousness And consciousness raises hopes and hopes inspire action So the people of the States had not only started clamouring for their political rights and the removal of the disabilities under which they had so long suffered but they had been stirred to action The Rulers could clearly visualize that a free India demanded a radical change in the government of their respective units

The imperialist hold on India for a century and a half had separated the country into two fragments British India and Indian States The freedom of the Indian States from foreign subjugation was only relative the Paramount Power controlled the external affairs of the States and exercised wide powers in relation to their internal matters But the division had proved ruinous to the millions who by accident lived in the Indian States Therefore it was heartening to find more and more Rulers realizing that there was nothing derogatory or undignified in national partnership with India Some of them even frankly confessed that under the tightened control of British Paramountcy they were miserably fettered and their position was no better than that of slaves Most of the States readily realised the urgent need for a new and national relationship between themselves and the Indian Union They hoped as did the Indian Union that such a new relationship would fill up the vacuum which otherwise would naturally arise on the lapse of Paramountcy That is why even before the transfer of power was effected on 15th August 1947 some four hundred States including Mysore Cochin Udaipur Jaipur Patiala Gwalior and Baroda realised that they could not and should not exist in the dangerous void as independent entities Thus discarding the pompous glamour of sovereign independence their Rulers very prudently decided to throw in their lot with the Indian Union They also realised the fact that their ancient and traditional forms of government would have to be thoroughly overhauled to meet the people s demand which had grown during the

last two decades into a strong force threatening the very existence of autocratic rule It is significant to note that Sardar Patel got very valuable assistance and co operation from Lord Mountbatten who made helpful efforts in contributing to the successful conclusion of negotiations between the Dominion Government and the Rulers of States The result was that barring the three States of Hyderabad Kashmir and Junagarh all the other States within the geographical limits of India had acceded to the Indian Dominion by 15th August 1947

The accession of these States circumscribed to a certain extent though it was in the beginning was a momentous event in India s history It was significant from many points of view For over half a century, the States had remained a sealed book for the leaders of public opinion in India High walls of political isolation had been steadily reared up and fortified to prevent the infiltration of the urge for freedom and democracy into the Indian States In the context of this unpropitious background the fulfilment of the ideal of a federal India comprising the Provinces and the States was a laudable achievement indeed After several centuries India was once again unified into a constitutional entity

But the accession of the Indian States to the Dominion of India was only the first phase of the process of fitting them into the constitutional structure of India We have already noted that there obtained a popular urge in the States for attaining the same degree of freedom as was enjoyed by the people in the Provinces With the advent of freedom this popular urge gathered momentum and gave birth to powerful and unprecedented movements for the transfer of power from the Rulers to the people Sardar Patel had repeatedly declared that the policy of the new States Department was not to conduct its relations with the States in any manner that savoured of the domination of the one over the other He had also assured the Rulers that it was not the desire of the Congress to interfere in any manner whatever with the domestic affairs of the States He had wished the Rulers and their subjects all prosperity contentment and happiness Now some of the smaller States were so situated that their rulers were in no position to meet the demand of their people for equating their position with that of their countrymen in the Provinces In the case of such States responsible government would have only proved a farce With the best of will and the most pious intentions these small entities did not have the resources to afford to instal the machinery for a self sufficient and progressive democratic set up In the larger States however the democratisation of administration could have met the popular demand and could thus be a satisfactory solution of their constitutional problem But as things stood at that time in 1947 there was a serious threat to law and order in most of the States If things were allowed to drift along, the resultant situation would have endangered peace and order not only in the States but also in the neighbouring Provinces There was hardly any doubt that the smaller State units could not have possibly continued in modern conditions as separate entities At that time integration provided the only sound approach to the problem The British Government had also during the last fifteen years stressed the desirability of the States with limited resources making arrangements for co operative grouping for administrative purposes The problem of consolidating some of the small States into local confederacies for the purposes of not only remedying their administrative deficiency but also for facilitating their inclusion in any federal arrangement applicable to India as a whole had also been once considered by the Crown Representative but had eventually been dropped as impracticable The subject had also often figured in the discussions of the Chamber of Princes and recommendations had been made regarding co operative grouping arrangements in different regions But those arrangements which were actually implemented did not go beyond providing for common High Courts and the creation of a common advisory staff for the Police Force All these half hearted measures were no more than an eye wash In effect they hardly touched the fringe of the real problem

The attainment of freedom brought the problem of the States to a head At this stage no lukewarm measures could propitiate the growing urge of the States people for ridding themselves of the yoke of obsolete autocratic rule The settlement of the problem of the smaller States therefore became the immediate objective of the States Department The policy of integration was thus evolved The main criterion before the States Department was to peacefully work a process of integrating small units into sizeable administrative units In actual practice however no single uniform pattern governed the integ ration of States Merger of States in the Provinces geographically contiguous to them was one form of integration the second was the conversion of some States into centrally administrated area while the third was the integration of the territories of certain States with a view to creating new viable units known as Unions of States Each of these forms was variously adopted keeping in view the size geography and other factors peculiar to each State or group of States Democratisation of the administration which had long been the keynote of the Congress policy towards the States had become a pressing problem since 15th August 1947 In order to fulfil those promises which were in consonance with the desires of the people of the States it was all the more imperative to go along with the process of democratisation and integration simultaneously in cases where on account of the smallness of its size isolation of its situation and inadequacy of its resources a State was unable to afford a modern system of Government

The interests of the people no less than those of the Rulers of the small States as also the wider interests of the country demanded a direct recourse to a peaceful and workable solution of the problem which had been delayed so long under the old regime Sardar Patel therefore held long discussions with the Rulers of the Orissa States in December 1947 It was the first series of important discussions in the matter of integration and democratisation of Indian States It was eventually decided that the smaller States of Orissa should be integrated with the Orissa Province This important decision was facilitated by the patriotic attitude of the Rulers Its peaceful implementation securely laid down the foundation of the policy of the integration of small States throughout the country The administration of the Orissa and Chhatisgarh States was made over to the Governments of Orissa and the Central Provinces on 1st January 1948 The Rulers signed agreements which provided for cession by them to the Dominion Government of full and exclusive authority jurisdiction and powers for and in relation to the governance of their States The merger of these States gave an impetus to the Rulers of the Deccan States who decided in favour of the security that they would get from integration with a resourceful unit like the Bombay Province as against the hazards of separate existence as small units They signed merger agreements on 19th February 1948 and subsequent dates Later on the Rulers of the Gujerat States Sirohi Baroda the smaller States of East Punjab Madras the United Provinces Cooch Behar and the Khasi Hill States decided to merge their States with the contiguous Provinces The process of such merger was almost completed by the end of 1949 In all 216 States scattered over the length and breadth of the whole country covering an area of 108 739 square miles with a population of 19 158 millions were merged in the Provinces

The number of States consolidated as centrally administred areas is 61 This form of integration has been adopted only in case in which for admini trative or strategic consideration or for other special reasons direct control over any area has been considered necessary A number of Rulers of the East Punjab Hill States were the first to sign on 8th March 1948 agreements ceding to the Dominion Government full and exclusive authority jurisdiction and powers for and in relation to the Governments of their States Other Rulers signed similar agreements on subsequent dates In deference to the wishes of the people and of the Rulers of these Hill States the Government of India integrated these States into a centrally administered unit known as the Himachal Pradesh The new Province comprising 21 hill States was inaugurated on 15th April 1948 The other areas which were taken over as Centrally Administered areas were the former States of Bilaspur Kutch Bhopal Tripura and Manipur These areas were initially placed under the

charge of Chief Commissioners who took over the reins of administration on behalf of the Dominion Government At a later stage on 1st January 1950 Vindhya Pradesh comprising 35 States known as Bundhelkhand and Baghelkhand States which had already been amalgamated in 1948, was taken over by the Centre for being administered as a Chief Commissioner s Province

In certain cases territories of States were united to form Unions of States on the basis of full transfer of power from the Rulers to the people In those regions where Unions were formed, the sentiment of the Rulers and the people alike was in favour of uch an arrangement In consolidating these States into sizeable and viable units due regard was paid to the geographical linguistic social and cultural affinities of the people Out of this arrangement emerged the new Unions known as Saurashtra, Madhya Bharat Patiala and East Punjab States Union the United States of Rajasthan and the United States of Travancore and Cochin In all 275 States covering an area of 215 450 square miles with a population of 34 7 millions were integrated in these Unions of States

This threefold integration of States will be considered by the future historian as one of the important achievements of India s history What is of greater significance is not the fact of mere external integration but the unique success of the process of inner integration that has manifested itself in the growth of democratic institutions in the States The institution of Indian Rulership during the British regime was essentially based on the personal autocracy of the Ruler Subject to the overriding authority of the Paramount Power the Ruler was virtually the State He was the source of all authority in theory as well as in practice In most cases autocracy continued unmasked and only in a few States it was covered by a thin veneer of democratic facade On the whole the Ruler s absolutism was the prevailing note of the policy of the States

Since 1929 the Congress had openly declared that the States should be brought in line with British India by the introduction of responsible Government Indeed the independence of India could have no meaning if the people of the States did not have the same political, social and economic freedom as was enjoyed by the people of the Provinces It was in this context that complete elimination of the autocracy of Rulers was decided upon and full and final transfer of power from the Rulers to the people became the underlying principle of all the schemes adopted for the integration of States In the case of merger with the Provinces or the con titution of States into centrally administered areas transfer of power to the people was automatic in the sense that the merged States became part of the administrative units which were governed by the popular Government in the Provinces or at the Centre as the case may be As regards the Unions of States interim Ministries were set up to conduct their administration Even in the States unaffected by any scheme of integration or merger the movement for responsible Government has rapidly developed There are three such States Hyderabad the State of Jammu and Kashmir and Mysore With the first two we shall deal in a subsequent chapter In Mysore there is already a popular government functioning The constitution of India delegates to the Rajpramukh the Council of Ministers and the legislatures of the new States Unions the same functions and powers as are exercisable by their counterparts in the other Provinces

The successful manner in which it was possible to bring about the whole process of integration and democratisation of the States owes itself to the able and patient handling of the problem by the late Sardar Patel The Rulers also acquitted themselves very nobly in giving their whole hearted co operation in this process of unification and democratisation of the States Sardar Patel paid a glowing tribute to them in these memorable words By their act of abnegation these Rulers have purchased in perpetuity their right to claim the devotion of their people I acknowledge the ready and willing help which the Rulers have given me in implementing the policy of integration and democratisation This involved on their part

considerable sacrifice and self denial For all this I am most grateful And indeed the people of the States in particular and the people of the whole of India owe a deep debt of gratitude to Sardar Patel with out whose untiring efforts and persistent perseverance such radical changes could not have been wrought in such a short space of time The great Sardar transformed the map of India as if by a magic wand

KASHMIR

THE new Indian Government had its hand full with all kinds of pressing problems when it was suddenly taken unawares by another dramatic development on the northern frontier In October 1947 the news came that hordes of frontier invaders had penetrated into the territory of Kashmir bringing death arson and rape in their wake Nehru s Government was naturally perturbed at this serious tampering with the sovereignty of a strategic border State The invasion spelt grave danger to India s security and hard won independence India however could not openly come to the rescue of Kashmir because this State had not acceded to the Indian Union and was still under the rule of the Maharaja It was only after the raid ers had begun thundering at the gates of Srinagar that the Maharaja called for immediate military help with the request on behalf of the Kashmir State for accession to the Indian Union On the morning of 25th October, Nehru and his colleagues considered this issue in the Defence Committee but no decision was taken about sending troops in view of the insurmountable obstacles in the way of implementing such an undertaking This problem was again taken up for discussion next morning because even in the course of one day the situa tion seemed to have go completely out of control The raiders had sacked several towns massacred thou sands of innocent men women and children and had destroyed the great Power House at Mahora which supplied electricity to the whole of Kashmir For a moment the fate of Kashmir seemed to hang in the bal ance and the people of Kashmir felt that India alone could save them from the impending disaster Further messages were received not only from the Maharaja of Kashmir but from representatives of the people parti cularly from Sheikh Mohammad Abdullah the President of the National Conference It was in response to these urgent appeals and requests that the Indian Government decided to accept this accession and send troops by air for the rescue of the stranded Kashmiris The intention was certainly not to take advantage of Kashmir s delicate situation and force any final decision on that State The primary consideration in taking this step was merely to help the Kashmiris in defending their hearths and homes and later to give them the fullest opportunity to decide their own future The troops sent in this connection were few and inadequately equipped the territories on which they were supposed to fight against the invaders were tricky and unpre dictable But armed with a genuine enthusiasm to help those in distress our troops succeeded ultimately in taking possession of Srinagar

It should however be mentioned here that this mission to Kashmir would not have succeeded without the full and wholehearted co operation of the Kashmiris themselves How could an army unsupported by the masses accomplish this difficult task ? In fact one of the major considerations in acceping *Kashmir s accession to the Indian Union was that this State did not present any communal problems In the* fight against the foreign invaders all sects of the Kashmiris had joined hands with each other and faced the common danger with equal zeal courage and hope In one of his statements on Kashmir Pandit Nehru remarked in unequivocal terms Kashmir is not a case of communal conflict it may be a case of political conflict if you like it may be a case of any other conflict but it is essentially not a case of communal conflict Therefore this struggle in Kashmir although it has brought suffering in its train to the people of Kashmir and placed a burden on the Government of India and the people of India

nevertheless it stands out as a sign of hope that there we see a certain co operation combination and co ordination of certain elements Hindus and Muslims and Sikhs and others on an equal level and for a political fight for their own freedom I wish to stress this because it is continually being said by our opponents and critics on the other side that this is a communal affair and that we are there to support the Hindus or Sikh minorities as against the Muslim masses of Kashmir Nothing can be more fantastically untrue He went on to assert emphatically that we could not for an instant send our armies and we could not be there if we were not supported by very large sections of the population which means the Muslims of Kashmir We would not have gone there in spite of the invitation of the Maharaja of Kashmir if that invitation had not been backed by the representatives of the people of Kashmir And may I say to the House that in spite of our armies having functioned with great gallantry even our armies could not have succeeded except with the help and co operation of the people of Kashmir

It was in response to these lofty urges and in close consonance with Mahatmaji s dictates that the Indian troops threw their weight on the side of the Kashmiris in their crusade against the merciless invaders whose performance in many respects was reminiscent of the great holocaust associated with the plundering raids of Chengiz Khan

Soon afterwards it was brought to light by concrete evidence that these raiders had been inspired by Pakistan to force Kashmir into acceding to the new Muslim State and that it was with the close and active co operation of Pakistani troops that these raiders had penetrated into the Kashmir territory with the latest weapons of modern warfare This fact was brought to the notice of Liaquat Ali Khan the then Prime Minister of Pakistan In a letter of 22nd December 1947 Nehru briefly enumerated the Pakistani acts of aggression and the nature of assistance given by Pakistan to these invaders Pakistan was requested to call upon her nationals to cease participating in the attack on the Jammu and Kashmir State and to deny to the invaders (1) all access to and use of Pakistan territory for operation against the Kashmir State (2) all military and other supplies (3) all other kinds of aid that might tend to prolong the present struggle It was the earnest desire of the Government of India to remove all causes of friction and misunderstanding between India and Pakistan It was hoped that this genuine request of Nehru s Government would be conceded in good faith But no reply was received to this request and the Government of India was forced to lodge a complaint on 30 th December, 1948 to the U N O Security Council against Pakistan s active participation in the violation of Kashmir territory A copy of this reference was also sent to the Pakistan Government This reference stated the various particulars of the case and pointed out that they inevitably led to the following inferences —

(*a*) that the invaders were allowed transit across Pakistan territory

(*b*) that they were allowed to use Pakistan territory as a base of operations

(*c*) that they included Pakistan nationals

(*d*) that they drew much of their military equipment, transport and supplies (including petrol) from Pakistan and

(*e*) that Pakistan officers were training guiding and otherwise helping them

Obviously there could be no other source than Pakistan from which such generous advice help and assistance could have been secured by the raiders The Government of India therefore requested the U N O to ask the Government of Pakistan

(1) to prevent Pakistan Government personnel military and civil participating in or assisting the invasion of the Jammu and Kashmir State

(2) to call upon other Pakistan nationals to desist from taking any part in the fighting in the Jammu and Kashmir State

erritory and it was therefore the inherent right of the Government of India to ng back the invaders from the Kashmir territory Until this was done no other letailed consideration The intention of the Indian Government in making this ancil was obvious it was merely to bring certain glaring facts to the notice of l nothing to hide and therefore the whole case was presented without any re rather unexpectedly the foreign observers who appeared on the scene to nd India were not completely unbiased Kashmir soon became a hot bed of came a breeding centre for all kinds of political conspiracies directed mostly much so that some sections of the Indian Press were fully justified in demanding Kashmir of all foreign elements which could be accused of pursuing suspicious ian territory Nevertheless India willingly accepted the U N O s offer to problem and submit its suggestions as to how it could be solved

ommission for India and Pakistan (UNCIP) landed in India in August 1948 od They were a mixed batch and it certainly went against the grain to m Latin America seeking to get on level terms with a problem which so many garded as their preserve On 10th September 1949 UNCIP proposed the er Nimitz as an arbitrator adding that his decision should be completely India at once objected against being placed on par with Pakistan which party The Commission therefore requested the Security Council s l McNaughton to conduct private negotiations with India and Pakistan rdar Ibrahim of the Azad Kashmir appeared at Lake Success to nts of view General McNaughton s term as President of the Security Council ir but the Council requested him to continue his efforts for another year His ar armies should be withdrawn in progressive stages so that after the complete Admiral Nimitz could work effectively on both sides of the dividing line This because the fact of Pakistani aggression in Kashmir had again not been properly on and India s claim to the northern passes was unjustifiably ignored On elt distressed over the U N O s attitude towards the Kashmir issue and in a fit rked My patience is getting exahusted McNaughton had on the other hand t make any tangible contribution to the Kashmir problem and so the following the Commission and withdrew from the scene

ttlement was made in a resolution at Lake Success sponsored by a hybrid s Britain Cuba and Norway The cue for its proposals was taken from ie progressive withdrawal of the respective forces was to be carried over a period ixon a Judge of the Australian High Court was entrusted with the task of imple militarisation On 14th March 1950 both India and Pakistan gave their

story of the Kashmir problem one could look forward towards the solution of and confidence A rare optimism was injected into the discussion between

India and Pakistan Even the *Times* (London) wrote, The way should now be prepared for Admiral Chester Nimitz to take up his function as Plebiscite Administrator, although it gave the credit for this temporary success exclusively to the British diplomatic efforts in this direction Sir Owen Dixon s main stress was on the plebiscite But the conditions and terms of this plebiscite were not fair and impartial from the Indian point of view and therefore Dixon also felt that he had failed in his mission How could India agree to the withdrawal of her forces from Kashmir when there was no guarantee against another possible invasion of the raiders from across the frontier ? And so the issue remained as unsolved as ever Finally the Commission proposed to elect yet another arbitrator Dr Graham to suggest arrangements for demilitarisation and to submit another detailed plan for plebiscite After three months he was required to report to the Council on the main points of disagreement if any which would be settled by arbitration on reference to a panel appointed by the International Court of Justice The notion of arbitration was enough to excite the suspicion of a country which had by now become sensitive to unnecessary and uninvited foreign interference with her own domestic problems Besides there was no assurance that the new arbitrator would deliver the goods

Kashmir however could not watch in silence this indecision about her destiny In September 1950 Sheikh Abdullah decided to hold popular elections so as to proceed courageously with the pressing task of putting his countrymen on some kind of firm basis Kashmir could not exist in a vacuum for an indefinite period Although many foreign commentators accused Jawahar Lal Nehru of inciting Sheikh Abdullah to take the step it should be remembered that Nehru was still prepared to bow unreservedly to any fair and impartial arrangement of a plebiscite He remarked We have made it perfectly clear in our statement in the Security Council that the Kashmir Constituent Assembly so far as we are concerned does not come in the way of a decision by the Security Council that stands completely It is surprising to note that even such genuine statements of the Indian Prime Minister were deliberately distorted by certain foreign diplomats who still accused him of being the only hurdle in the way of UNCIP Time and again Jawahar Lal Nehru had himself made clear that he would not force any decision on Kashmir which was against the popular wishes of its people In the course of a famous speech in the Indian Constituent Assembly he reasserted, We have only two objectives in the Jammu and Kashmir State to ensure the freedom and progress of the people there and to prevent anything happening that might endanger the security of India We have nothing else to gain from Kashmir though Kashmir may profit much by our assistance We have declared that the fate of Kashmir is ultimately to be decided by the people That pledge we have given and the Maharaja has supported it not only to the people of Kashmir but to the world We will not and cannot back out of it We are prepared when peace and law and order have been established to have a referendum held under international *auspices like the United Nations We want it to be a fair and just reference to the people and we shall accept* their verdict I can imagine no fairer and juster offer Meanwhile we have given our word to the people of Kashmir to protect them against the invader and we shall keep our pledge

In spite of these sincere intentions India s case for Kashmir was misrepresented in the foreign Press and the whole blame for Dr Graham s failure was put on India

We should remember that in his second report of 17th January 1952 Dr Graham had admitted his failure to convince India of the authenticity of his proposals There were two difficulties in the way of implementing Dr Graham s suggestions The first was the problem of disarming and disbanding the Azad Kashmir forces and secondly it seemed impossible to decide the moment within the period of the demilitarisation when the Plebiscite Administrator would take up his appointment Besides these difficulties there was also the problem of settling the more vital question of the numbers of regular troops to be left behind India who had always been prepared to accept any reasonable settlement of the problem agreed to the limiting of her forces to a Division of 21 000 troops exclusive of the State Militia of 6 000 which Abdullah s Govern

ment had mobilised during the period of their struggle against the invaders On the Pakistan side there were to be three regular Divisions, four battalions of Azad force and a civilian force of 4,000 which in turn was to be sub divided into no less than 4 categories The Devers plan was sent for consideration to both Govern ments on 29th November 1951 and these terms were substantially accepted by the Government of India But when on 21st January 1952 a different form of the Plan was published purporting to be the original docu ment consented to, India forthwith denied all acquaintance with it According to the plan the disparity of forces was now reduced to about 4 000 (India 13 800 and Pakistan 10 200) Foreign commentators like Lord Birdwood and others immediately blamed India for adopting an attitude of non cooperation and intransigence But the fault clearly lay with the representatives of UNCIP who shifted their positions when ever possible, to suit their convenience Russia had so far remained silent on the Kashmir issue, but after four years of reserving her judgment she now spoke through her delegate, Mr Jacob Malik, to throw light on some of the underhand motives of the Anglo American conspiracy against Indian interests Although he cannot be accepted as a balanced critic of the Kashmir problem, there was some truth in his statement that Kashmir was really intended as a trust territory under Anglo American control He also pointed out how Kash mir was later intended to be used as a strategic air base for the Anglo American bloc His accusation of the U N O designs to clamp upon Kashmir Imperial control by the back door may imply some prejudice or exaggeration But the fact remains that the Western Big Powers had decided not to recognise India s just claim on Kashmir by pre occupying themselves with either the proposals of partitioning Kashmir or conducting plebiscite in conditions which were not conducive to fair and impartial elections One of the rocks on which Dr Graham s proposals ultimately foundered was the timing of the arrival of the Plebiscite Administrator He reported that he would like to invite Admiral Nimitz to participate in the discussions This was again an attempt to vitiate the issue by introducing prejudices into this delicate problem In its issue of 3rd May 1952 *India News* (London) offered its comments

It is India s view that the time for appointment of the Administrator is after the demilitarisation scheme has been agreed to and they feel that if Admiral Nimitz should get involved in any prior controversies which are bound to arise in the course of negotiations for demilitarisation it would prejudice his position as Administrator Any man taking an active part in the parleys will be forced to take sides at some stage and that will at once disqualify him from his exalted office as Administrator because he would have lost his impar tiality

However Dr Graham had not given up his efforts to explore the possibility of an agreement bet ween India and Pakistan on the outstanding points As a last resort he suggested that both countries should enter into immediate negotiations in New York to decide the issue pertaining to the strength and character of the forces to be kept in Kashmir These proposals were in many respects similar in nature to the previous sugges tions of Sir Owen Dixon Early in February 1953 Dr Graham met Sir Zafrullah Khan and Sir Girja Shanker Bajpai in Geneva though not in New York But their mutual discussions did not lead to any agreement on this vital issue and Dr Graham had to publicly announce his failure in bringing about a compromise between the two countries In the meantime another dramatic development turned the course of events in Kashmir Sheikh Abdullah who had so far been a champion of civil liberties in the State, and an ardent supporter of Kashmir s accession to the Indian Union now began to entertain different notions about the future of his State This change in his attitude towards India was obviously the result of active machination of certain interested foreign diplomats in Srinagar who were constantly trying to bring Abdullah under their influence It was on the encouragement of this foreign support that Sheikh Abdullah began to visualise Kash mir as a completely independent State His changed attitude obviously savoured of betrayal of the trust and confidence imposed by India in his *bonafides* To avoid any *coup de etat* Nehru s Government acted promptly and firmly Early on the morning of 9th August, 1953, Abdullah, together with a few members of his

family and Mirza Afzal Beg the Revenue Minister were taken into custody and interned in a Rest House at Udhampur Bakshi Ghulam Mohammad now assumed the responsibility of guiding the destiny of his State Before assessing all the factors responsible for this change over it may well be remembered that Pandit Nehru was personally much aggrieved to find his erstwhile friend Sheikh Abdullah being removed from the headship of the State But circumstances had forced his hands into recognising the orders of the Sadar i Riyasat for the immediate arrest of Sheikh Abdullah Since August 1953, under Bakhshi Ghulam Mohammad s leadership Kashmir has made commendable progress in all fields and the entire face of the State is assuming brighter colours Both as an administrator and popular leader, he has given a much more brilliant perfor mance than his predecessor In consonance with the constitutional forms of Government, as mentioned in the *proclamation of the Maharaja of Kashmir on 1st March 1948 Bakshi Ghulam Mohammad's* Government is bringing about a general national awakening among the masses It should be interesting here to recall the basis of the present constitutional Government in Kashmir The Maharaja of Kashmir had ordained in his proclamation mentioned above that

(1) My Council of Ministers shall consist of the Prime Minister and such other Ministers as may be appointed on the advice of the Prime Minister

(2) The Prime Minister and other Ministers shall function as a Cabinet and act on the principle of joint responsibility A Dewan appointed by me shall also be a member of the Cabinet

(3) I take this opportunity of giving once again a solemn assurance that all sections of my people will have opportunities of service both civil and military solely on the basis of their merits and irrespective of creed or community

(4) My Council of Ministers shall take appropriate steps as soon as the restoration of normal conditions has been completed to convene a National Assembly based upon adult suffrage having due regard to the principle that the number of representatives from each voting area should as far as practicable be proportionate to the population of that area

(5) The constitution to be framed by the National Assembly shall provide adequate safeguards for the minorities and contain appropriate provisions guaranteeing freedom of conscience freedom of speech and freedom of assembly

(6) The National Assembly shall as soon as the work of framing the new constitution is com pleted submit it through the Council of Ministers for my acceptance

(7) In conclusion I repeat the hope that the formation of a popular interim Government and the inauguaration in the near future of a fully democratic Constitution will ensure the contentment happiness and the moral and material advancement of my beloved people

Since March 1948 Kashmir has progressively advanced politically economically and culturally India has not spared any efforts in giving financial or moral support for the amelioration of her poor masses Since Kashmir s accession to India there has been a distinct change over from a capitalistic and monarchi cal form of Government to a socialistic pattern of administration One of the distinguished achievements of the popular Goverment in Kashmir was the passing of the Big Landed Estates Abolition Act 1950 accord ing to which all land exceeding 22½ acres was expropriated and only 1 acre could be retained for residential use The Government announced that they would pay compensation on a sliding scale payment being made for three years and being reduced to half the former revenue in the 3rd year This compensation would in no case exceed Rs 3 000/ per acre All declarations were subject to confirmation by a Com mittee of the Kashmir Constituent Assembly

Kashmir now has direct road links with India her mineral resources are being tapped, her cottage industries encouraged, and her economy stabilised by the Indian tourists who visit the various parts of

Kashmir every summer in large number Kashmir goods find ready market in India In fact Kashmir has been drawing liberally on the active support and co operation of all Indians She has now a University of her own and is fast establishing her identity as a separate cultural unit against a wider background of Indian culture In supporting the national struggle in Kashmir in helping the Kashmiris to become masters of their lands, India has proved beyond all doubt that she stands for unadulterated secularism Sheikh Abdullah himself declared in one of his earlier speeches that Kashmir stands for affording equal opportunities to all sects and creeds in the State Nor was he oblivious of the close trade links between Kashmir and India Time and again he asserted that our economic interest lies with India Our trade connections are here and we have here extensive market for our goods Bakhshi Ghulam Mohammad s Government is now reaping the harvest of Kashmir s trade relations with India which have led to general prosperity in the State

But the question of plebiscite in Kashmir is still hanging fire and the final decision lies in the lap of the future India expects no returns in material or political terms, from Kashmir because her interests from the very beginning have exclusively been confined to helping a sister State in remoulding her destiny If Kashmir has decided to become a part of India, it is for her own welfare and prosperity India on her side will never hesitate to offer her unstinted help and guidance to Kashmir in all moments of crisis and tribulation And indeed she has already spent crores of rupees on the various State Projects in Kashmir leaving all interested parties to unnecessarily quibble over the subtle aspects of India s claim on Kashmir In the sincere goodwill of the Kashmiris alone lies our true reward and salvation

But the story of Kashmir goes on In the course of one of his speeches Pandit Jawahar Lal Nehru summed up the entire situation by placing all the facts before the Constituent Assembly Apart from rehetoric and vague insinuations I should like to know from any body—friend or enemy—from that day in the last week of October when we took the fateful decision to send our troops by air to Kashmir till to day what it is we have done in Kashmir which from any point of view and any standard is wrong

I want an answer to that question Individuals may have erred here and there but I say that the Government of India and the Indian Army as a whole have done something which was inevitable and each step that we have taken has been an inevitable step which, if we had not taken it would have brought disgrace to us This is how I have ventured to look at this question of Kashmir And when I find that on the other side a whole case has been built up that I venture to say using strong language is falsehood and deceit am I wrong ? This is what I ask of this House and the country and the world to consider

India has nothing to conceal All of her moves have been above board she has tried to hide no facts and vitiate no facts and vitiate no issues with prejudices She is prepared at any time to stand at the bar of world opinion and let the better conscience of the Western Powers decide the issue on its own merits India who has always championed the causes of self determination democracy and freedom could not possibly be a party to any coercion for forcefully making Kashmir a part of India Nehru and his Government would always remain committed to accept the verdict not of the Power blocs but of the Kashmiris themselves based on a plebiscite organized under fair and impartial conditions

HYDERABAD

ONE of the legacies of Partition was the problem of Hyderabad which started assuming large dimensions—even a few weeks before the British withdrawal from India Many foreign commentators have tried to study and present Hyderabad and Kashmir as two aspects of the same problem But there is a fundamental difference between the implications of the problem of Kashmir and Hyderabad Whereas the former is a border State and as such represents only the remote limbs of an organism, the latter forms the very heart which controls the circulatory movements Surrounded on all sides by Indian territory and situated in the heart of this sub continent, Hyderabad could not possibly be allowed to function as a convenient centre for foreign conspiracies against the interests of the Indian Government In fact the Nizam of Hyderabad had made it clear beyond doubt that he had his inner most sympathies for the new Muslim State of Pakistan In these circumstances India could not remain unconcerned about the attitude of a big State like Hyderabad which was half the size of France and had a population of 17 million, more than twice as many as any other Indian State and considerably more than Canada or any other British Dominion outside India Undoubtedly Hyderabad could claim to have its peculiar background and its special problems It had remained under Muslim Rule for seven centuries and under the Asafia dynasty for more than two But like all other princely States in India it had also been an asylum for all reactionary forces In the new India burning with the zeal for equality of opportunity for all citizens there could be no compromise with a State which threatened to exist as an anachronism in the modern democratic set up The extremely depressing conditions of the masses created a glaring contrast between the irresponsible rulers and the voiceless subjects Hyderabad had to fall in line with the Indian Union by accepting the dictates of the times But before finally justifying India s action in liberating the masses of Hyderabad from the medieval rule of the Nizam it may be appropriate here to trace in brief outline the history of Indo Hyderabad relationship since independence This survey would enable us to appreciate how far the Indian Government was prepared to recognise the just claims and privileges of the Nizam s Government It was only when no encouraging response was received from the other side, that Police Action had to be organized to make the Nizam realize the reality of the situation

In one of his earlier letters dated 8th August 1947, the Nizam of Hyderabad wrote to Lord Mountbatten the then Crown representative expressing the hope that after Independence his State would attain complete autonomy under his rule Time and again he referred to his glorious record of unflinching loyalty to the British Crown His sympathies for Pakistan may also be gauged in this extract from the letter mentioned above

> The partition of India has gravely complicated the problem for my State As Your Excellency knows while Hyderabad is necessarily closely concerned in various ways with what will now become the Dominion of India *there are also many ties between my State and the future Pakistan Dominion* It is not yet clear how far and in what manner the Indian Dominion and Pakistan Dominion will consult and co operate on matters of common concern or how closely their policies can be integrated on the essential subjects of External Affairs and Defence But it would be necessary for me to provide against the possibility which I earnestly hope will never arise in fact that the two new Dominions might pursue a mutually hostile policy *In that case it would be unthinkable for my State to pursue a hostile policy towards the Dominion of Pakistan*

In the same letter the Nizam attempted to rouse the British sympathies by making an emotional appeal to Lord Moutbatten in these words I cannot believe that after more than a century of faithful alliance it is the intention of the British Government to throw my State out of the Empire against my will

The working of the Nizam s mind may be clearly seen from the way he betrayed in this letter his secret sympathies for Pakistan and his desire to become the head of an independent rival State All this naturally created deep distrust and suspicion in the mind of Jawaharlal Nehru who became wary and cautious in anticipating the Nizam s next move In a few weeks the Nizam was busy preparing a draft for his proposed treaty with the Government of India because after Independence he had climbed down a little from his original demand for complete antonomy before 15th August However he still stuck to his original position of claiming an independent right to enter into direct political relations with any foreign power This was obviously more than Nehru s Government could swallow

Under the influence of certain British advisers, the Nizam continued to make extremely shrewd offers which however failed to impress the Indian Government For instance in his letter of 26th Sept 1947 he slightly modified his position by saying While we were under the protection of British paramountcy we were content that external relations should be in their hands But the British have gone and the paramountcy is over and the States have been given the opportunity if they choose of assuming complete independence And then he added rather lamely that he would try to follow his foreign policy as far as possible in close conformity with that of the Indian Government It may also be noted here that till the end of October 1947 he was still flirting with Pakistan and threatening India with direct negotiations with the Muslim State if the latter failed to arrive at mutual understanding In one of his later letters he wrote to the Governor General of India But if God forbid a break down were to occur in the negotiations I would feel compelled though much against my will since I do not desire to break off relations with the Indian Government to negotiate a similar Agreement with Pakistan as I cannot remain inactive because it is necessary for me to maintain friendly relations with both the Dominions so that it does not matter which one I begin with for if I were not to do so the announcement made by me on 15th August would lose all meaning and the world would say that I had slighted Pakistan by neglecting it and entering into relations with India alone He went on to add that this would have an unfavourable repercussion not only in Pakistan but would even affect the loyalty of the Muslims of India towards me as they would think that I had no regard for my co religionists If I were to take no account of Pakistan or offer it a slight I would not be able to face the Muslim World This is natural because being the ruler of the largest Muslim State in India I enjoy the confidence and support of the people of my community Indeed he was right in making it explicit beyond doubt that he was facing in one direction only i e Pakistan How could there be any place for the Head of a State who was deliberately fo tering communal tension in his territory ? While Nehru was enthusiastically combing out all communal elements from India how could he tolerate communal fanatics like the Nizam of Hyderabad But it must be said to Nehru s credit that in spite of these serious differences between his Government and the Nizam he was still prepared to meet the latter more than half way by recognising a majority of his claims and privileges Instead of resorting to any drastic measures at thi stage he directed his Government to sign with the Nizam an agreement which afforded an honourable settlement for both the parties This was signed on the 29th Nov 1947 whereby it was agreed

Article I—Until new agreements in this behalf are made all agreements and administrative arrangements as to the matter of common concern including External Affairs Defence and Communications which were existing between the Crown and the Nizam immediately before 15th August 1947, shall in so far as may be appropriate continue as between the Dominion of India (or any part thereof) and the Nizam

Nothing herein contained shall impose any obligation or confer any right on the Dominion—

(i) to send troops to assist the Nizam in the maintenance of internal order

(ii) to station troops in Hyderabad territory except in time of war and with the consent of the Nizam which will not be unreasonably withheld any troops so stationed to be withdrawn from Hyderabad territory within 6 months of the termination of hostilities

Article 2—The Government of India and the Nizam agree for the better execution of the purposes of this Agreement to appoint Agents in Hyderabad and Delhi respectively, and to give every facility to them for the discharge of their functions

Article 3—(i) Nothing herein contained shall include or introduce paramountcy functions or create any *paramountcy relationship*

(ii) Nothing hereby contained and nothing done in pursuance hereof shall be deemed to create in favour of either party any right continuing after the date of termination of this Agreement and nothing herein contained and nothing done in pursuance hereof shall be deemed to derogate from any right which but for this Agreement would have been exercisable by either party to it after the date of termination hereof

Article 4—Any dispute arising out of this Agreement or out of agreements or arrangements hereby continued shall be referred to the arbitration of two arbitrators one appointed by each of the parties and an umpire appointed by those arbitrators

Article 5—This Agreement shall come into force at once and shall remain in force for a period of one year

But as soon as this Agreement was signed the Nizam of Hyderabad began to pursue under hand means of sabotaging the interests of the Indian Government Most of his activities after the signing of this Agreement constituted a serious infringement of the terms of this understanding Without losing any time the Secretary of the Ministry of States Government of India sent a Memorandum to the Nizam through his Agent General in Delhi The three outstanding points mentioned in this document were the action of the Nizam s Government

(i) in making the circulation of Indian currency illegal in the State
(ii) in prohibiting the export of bullion and precious stones and metals from the State
(iii) in granting a loan of Rs 20 crores to the Government of Pakistan

In this connection it may be observed in further detail that prior to the promulgation of the Hyderabad Currency (Amendment) Ordinance 1947 Indian Currency used to circulate in Hyderabad along side the State Currency and there was no law which precluded its use in transactions involving the use of money But under the new Ordinance the Nizam had made it a penal offence to use Indian Currency in ordinary cash transactions With regard to the loan of 20 crores to Pakistan it is clear that Hyderabad could not be absolved of this blame The Nizam however tried to hoodwink the issue by saying that the transaction was not a loan but an exchange of securities between the Hyderabad Government and Pakistan and that this was decided late in October or early November before the Standstill Agreement was signed. But the Reserve Bank of India had not by that time issued any loan on behalf of the Pakistan Government or any Provincial Government in Pakistan and therefore there could be no question of exchanging any securities of the Pakistan Government for Government of India securities held by the Hyderabad Government The second explanation forwarded by the Nizam s Government was that Hyderabad wanted to spread its investments But it was obvious that no Government could be so stupid as to think of converting as much as one third of its existing investments into the securities of a new State about the financial position of which no concrete data were available It was clear that according to the terms of the Standstill Agreement *the Nizam s Government should not have entered into* any such *deal* with a foreign State *least of all a* country which had hostile designs against India The Nizam with the advice of Sir Walter Monckton tried to render some further explanations but the Government of India could no longer have any implicit faith in the bonafides of his Government. To make matters worse the Nizam in criminal haste appointed

a Public Relations Officers in Pakistan and adoped many other measures which were highly prejudicial to the interests of a country which had willingly accommodated his rightful claims and demands The Nizam however, continued pursuing his inimical designs particularly in the strengthening of organization of Razakars who started a reign of terror in the State The Hindu majority of Hyderabad was intimidated into fear and insecurity which led to general discontentment among the masses It was in these circumstances that Lord Mountbatten was forced to bring some of these infringements to the notice of the Nizam of Hyderabad In a letter dated April 8th 1948 he wrote I would first say that when the Standstill Agreement between India and Hyderabad was executed at the end of November 1947 I hoped that the satisfactory working of this Agreement with goodwill on both sides, would result, on its termination in the ground being prepared for the formulation of a permanent close association between India and Hyderabad This hope was fully shared by my Government He then went on to dispel all fears from the mind of the Nizam about the possibility of India clamping an economic blockade on Hyderabad I can now once more assure you that to the best of my knowledge and belief Pandit Nehru and the other Ministers of the Central Government of India have in no way been parties to any policy of applying economic pressure on Hyderabad *I do not know whether you have ever met Pandit Nehru if you had I do not believe that you would allow any accusation of the nature you imply to be levelled against him* Lord Mountbatten then proceeded to fearlessly expose the irresponsible and one sided attitude of the Nizam against the Hindu majority of his State It is impossible for any fair minded person in the outside world to view the present Government of Hyderabad but as one representing and indeed dominated by a party which commands the support of only a part of the minority community in the State nor to the best of my knowledge is it responsible to the Legislature If you could now see your way to introducing a Government truly representative of the desires and aspirations of your people as a whole, I believe that you will do a great service to the future of the whole of this sub continent

But all these appeals had hardly any effect on the Nizam and the Government of India felt greatly perplexed how to adjust itself to the new conditions Time and again the Nizam was reminded that the conclusion of a Standstill Agreement for one year without the accession of the State to the Dominion of India was an exceptional arrangement to which the Government of India had not agreed in the case of any other State In the case of Hyderabad the Government of India had agreed to such an arrangement out of consideration for the special circumstances of the State and in the hope that during the period of the Agreement the State would be able to settle its internal difficulties so as to make it possible for itself to accede to the Dominion of India Instead of appreciating such liberal approach towards Hyderabad the Nizam continued to encourage anti Hindu elements in the State until the Government of India was compelled to make a strong appeal for an immediate disbandment of the Razakars the volunteer organization of the Ittehad ul Muslimeen It also pressed for an early assurance that the Press and Radio controlled by the Government of Hyderabad would cease forthwith from indulging in hostile propaganda against the Government of India The Razakars it may be noted had been responsible for many acts of violence not only in the State of Hyderabad itself but also in the neighbouring territories of the Dominion of India They had been assigned an official part to play in the internal security arrangement of the State which clearly showed that they functioned with the full support and connivance of the Nizam himself The Government of India had acquired secret information about the Razakars whose activities were exclusively directed towards suppressing all opposition in the State by violent methods They terrorised the border areas of the three neighbouring Indian Provinces conducted virulent propaganda against India and even attempted to mobilise Muslims in some parts of India against the Government Provoked by these irresponsible activities of the Razakars Pandit Nehru made a direct reference to this organization in the course of a speech before the Constituent Assembly on 7th September 1948

"Our repeated attempts at a settlement, which came near to success on one or two occasions ended unfortunately in failure The reasons for this were obvious to us , there were sinister forces at work in the Hyderabad State which were determined not to allow any agreement with the Indian Union These forces led by completely irresponsible persons have progressively gained in strength and now completely control the Government The resources of the State were and are being mobilized for war in every way The State army has been increased and irregular armies have been allowed to grow up rapidly Arms and ammunition were smuggled in from abroad this process in which a number of foreign adventurers have been taking a prominent part is continuing No country situated as India is would have tolerated these warlike preparations by a State in its very heart Nevertheless the present Government of India patiently continued negotiations in the hope that they would lead to some settlement The only other step they took was to prevent in so far as they could the flow of warlike material into Hyderabad

'The private armies that grew in Hyderabad notably the Razakars have become more and more aggressive and brutal within the State and sometimes across its borders in India The growing terrorism and frightfulness inside the Hyderabad State against all those Muslims and non Muslims who are opposed to the Razakars and their allies both official and non official has produced a very grave situation and has had its repercussions on the bordering areas of the Union and in India generally At the present moment our immediate and most anxious preoccupation is this mounting wave of violence and anarchy inside the Hyderabad State

A full account of Razakar activities will take long I shall mention only some recent incidents and a few figures The inhabitants of a village inside the State which under the spirited leadership of its head man had offered stout resistance to these gangsters were when resistance became impossible owing to the exhaustion of ammunition put to the sword and the village itself burnt The brave headman was decapitated and his head carried about on the pole In another village men women and children were collected in one spot and shot dead by the Razakars and the Nizam s police

A large party of villagers fleeing in bullock carts to some haven of safety in India was brutally attacked the men were beaten up and the women abducted

A train was held up the passengers looted and a number of coaches burnt The House is aware of the attacks on our troops seeking to enter our enclaves within Hyderabad territory and of Razakar incursions into our own villages along the border

Nehru s Government could not obviously allow this state of affairs to continue for long A State situated in the centre of India which had due to the extremely poor conditions of its masses become a breeding ground for the communists to conduct their vicious propaganda could not be permitted to spread the infection of disorder and lawlessness to the neighbouring territories of the Indian Union In the hands of a constitutional monarch things would not have deteriorated so much but the Nizam s rule represented absolute power completely divorced from responsibility In fact Alan Campbell Johnson in his book *Mission with Mountbatten* relates an interesting encounter with the Nizam when he was sent by the Governor General to deliver an important personal document to the Nizam As the subject turned round Mountbatten s interest in the survival of the Nizam s dynasty Mr Campbell Johnson explained that his master was a firm believer in constitutional monarchy at which the Nizam remarked vehemently Constitutional monarchy may be very well in Europe and the West but it has no meaning in the East

Such were the tyrannical conditions prevailing in Hyderabad which forced the hands of Nehru s Government into adopting a more direct method of settling the protracted disputes outstanding between

India and this princely State In September 1948 Indian Police forces marched into the Hyderabad territory and without much loss of time set all conflicts at rest But the armed forces which carried out this delicate mission performed this task like true soldiers with skill discipline forbearance and strict observance of all the codes of honour It was therefore with a ring of pride and achievement in his voice that Pandit Nehru remarked after the successful completion of the Police Action in Hyderabad What has pleased me most during these past six days is the splendid response of our people both Muslim and non Muslim to the call of restraint and discipline and the test of unity It is a remarkable thing and one which is full of good augury for the future that not a single communal incident occurred in the whole length and breadth of this great country I should also like to congratulate the people of Hyderabad who during these days of trial kept calm and helped the cause of peace Many persons warned us of the risks and dangers that we faced and of the communal trouble that might besmirch our land But our people have falsified these prophets and demonstrated that when crisis faced them they could face it with courage dignity and calm An evil course was followed by the ruling clique in Hyderabad and that led to this unfortunate conflict Pandit Nehru went on to assure all parties in Hyderabad that the future of this great State would be determined in accordance with the wishes of the people And it was comforting to see that the people of Hyderabad pronounced their verdict in favour of complete organic union with India Truth and good will had triumphed over tyranny and injustice The Hyderabad chapter was brought to a happy close

of the Ashram consisted of nothing more than stray flowers as a gift of nature His first injunction to Mis Slade the sophisticated daughter of a British Admiral, was to shed off her civilisation, if she wanted to be a disciple at his feet She obeyed and became the well known Mira Behn The menial work in the Ashram must be done by every one with one s own hands The Ashram was the flowering house of ideals The basic system of education was evolved here and spread throughout the country

The emancipation of women came about through him as a part of the universal education The Khadi and Gramudyog were part of his plan to ruralise the face of India and to solve the unemployment problem His charkha was an emblem of economic resurgence as well as a political weapon against the British vested interests The big mill owners and millionaires like Birlas were to be treated as the trustees of the poor and to be used to propagate nationalism in the struggle against foreign Raj

It was not merely in the economic field that Gandhiji s force was felt The social order came under his vigilant eye and he sought to eradicate social evils The Harijans uplift was his greatest concern The Harijan was to him a man near divinity He would shun palaces and stay in the Bhangi Colony in the midst of poverty and squalor Even the Governors General diplomats and Ministers and foreign emissaries must go thither to meet Gandhiji The Harijans had been downtrodden for ages and they were the bed rock of the top heavy Hindu caste system Their economic backwardness and social insecurity reduced the Harijans to a position of serfdom as mere hewers of wood and drawers of water The British used the Harijans as pawns as they did the Muslims Dr Ambedker was set up by the British to counter Gandhiji s solicitude for Harijans To espouse their cause, Gandhiji brought out the monthly magazine Harijan When during the Round Table Conference in 1931 Ramsay Macdonald announced his well known Communal Award to bifurcate the Hindu society into caste Hindus and Scheduled castes Gandhiji staked his life and took a fast unto death against that Award India was astir and the Award was withdrawn One of the greatest achievements of Gandhiji was the emancipation of the Harijans from their semi slavery The grateful nation passed laws throwing temples open to Harijans after centuries of social ostracism

Like the Harijan cause communal unity was also nearest to Gandhiji s heart The British game of divide et impera was countered by him by preaching the fatherhood of God and the brotherhood of man The Hindu Muslim Unity in 1921 was a miracle on the eve of khilafat agitation White imperialism fostered and fomented communal riots two years later in order to checkmate communal unity Separate electorates were a part of the same move Gandhiji replied with his demand for joint electorates But the Muslim League was created by the British like a phantom Jinnah was egged on by them to put up his well known 14 points and thereafter he evolved the notorious two nations theory Gandhiji opposed the former tooth and nail at the Round Table Conference in the thirties and again at his meeting with the British statesmen in the forties during the World War He refused to consider the Cripps proposal and Churchill s offer But the British saboteurs and agents provocateurs created an intense atmosphere of communal hatred resulting in a chain of communal disturbances Soon after the termination of the war riots were engineered in Bengal in 1946 with reprisals following in Behar and recoiling like a boomerang in the Punjab This was a well known pastime and game of the British They had practised it in Ireland, Africa and elsewhere in the course of their imperialistic adventures

The vicious and fiery circle spread out wider and wider entailing a conflagration like a prairie fire Punjab and Noakhali were ravaged by these devasting fires burning down cities villages hamlets the innocents and the poor Gandhiji was terribly anguished in soul He saw his cherished fabric of unity tumbling down in the midst of madding crowds ignoble strife Pakistan arose like a Sphynx out



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of the ashes of this unholy fire smouldering with stinks of innocent corpses Gandhiji had only one answer Self Immolation

The dawn of independence in August 1947 found Gandhiji absent from the scene of rejoicing He was trudging his weary path in Noakhali wiping tears of the lowly and the poor sufferers of communal passions Day in and day out he moved from hamlet to hamlet and from village to village to give solace to afflicted humanity, to restore order out of chaos and to apply the healing balm to afflictions The celebrations of independence in all their majestic glory and gorgeousness had no room in his scheme of things The birth of democracy and independence was accompanied by immense travail and unprecedented blood shed His place was with the poor masses rather than with the office holders The image of a frail man, moving on his rickety legs with a weeping ulcer on his weary feet gave solace to the needy His cherished dream of political independence did materialise but it was a shattered materialisation of dream This hurt the poor old man grievously He prayed again and again to God to lift him from this earth rather than suffer him to live his cherished goal of 125 years which he used to proclaim earlier in half serious and half humorous vein He wanted to quit this planet and said so time and again

His wish came true It was the offering of self sacrifice and self immolation that could appease the communal passions It is in the traditions of the East that when a great catastrophe overtakes an individual or a community or a nation the sacrifice of the most cherished and dearest is the greatest Havan in the sacrificial fire The communal conflagration was turned into a sacrificial fire and Gandhiji could think of nothing greater than the immolation of his own self He had himself written two letters The duty of renunciation differentiates mankind from the beast There is no deliverance and no hope without sacrifice discipline and self control He spoke to Mirabahen hardly a few days before his assassination I cannot come to you, *why count on a corpse* ? Only on the 29th January 1948 he wrote his last letter

Kishorlal gave me news of the death of your daughter Sulochana I had no idea at all of it What can I write to you ? What comfort could I give ? Death is a true friend It is only our ignorance that causes us grief Sulochana s spirit was yesterday is to day and will remain tomorrow The body of course must die Sulochana has gone taking her failings with her leaving the good in her behind Let us not forget that Be even more true in the discharge of your duty

Gandhiji had once said To die at the hands of one s brother is a privilege provided you die bravely

Then came January 30th

He came out to hold his usual prayer meeting The hand of the assassin moved and what a mighty fall there was ! Even in death his last words were HE RAM

The world shook in tremors The greatest man of his time born after centuries waiting was no more in flesh and blood The high and low kings and princes statesmen and politicians young and old and even the very air all round shed tears at this Maha Nirwan of the modern Budha It wa like a repetition of the crucifixion of Jesus after 2 000 years Perhaps history repeated itself The crucifixion ushered in the immortal light and dispelled darkness Gandhiji died only to live for ever and ever

Gandhiji s death was the beginning of a new era of peace The world had to pay the greatest price for ushering in this new era The mind that worked day and night to resurrect society was no more there in flesh and blood But the spirit survived and survives and will always survive There was not a country which did not observe the mourning Tributes to Gandhiji were out of place because he was above all tributes and praise But a grateful humanity offered the tributes in

token of their last homage His own son wrote And yet Gandhiji s interest in the narrow domestic circle was of the meagrest and I had long ceased to look upon him as my father in any possessive sense He was a saint as much to me as to any of you and I feel and see the void exactly as you do I therefore view the disaster with the detachment of one living in the North Pole and having ties neither of blood nor of race with the Great One of whose loss we are as yet but dimly aware'

A Christian Bishop of Mysore said At a Christian conference when the president, in the course of his address asked Who is the greatest Christian saint ? none answered And he announced that it was Mahatama Gandhi Though a Hindu by his firm faith in the fatherhood of God and brotherhood of man he has revealed to us the Kingdom of God which our Lord Jesus came to establish on earth Jesus said When a man loves God and loves man he enters the Kingdom of God Gandhi has exemplified this in his life and work and has sacrificed his life for his countrymen He was we all now deeply influenced by the Sermon on the Mount

He was the one complete man in this age of errors He combined in a single self the multiple roles of saint philosopher politician and guide Time will bring out in sharp relief his true greatness in relation to others His achievement was little short of miracle Mr A K Fazul Huq ex Premier of Bengal referred to the assassination of Mahatma Gandhi as one of the most tragic events since the great tragedy of Karbala

The *Pakistan Times* recorded Mahatma Gandhi is dead The world has been deprived of the sight and sound of his frail body and aged voice—the body and voice that had in the last few months almost lost for a large section of mankind their personal and ephemeral character and become timeless symbols of compassionate love and fearless rectitude In his last momentous days Gandhi the politician gave place to the infinitely greater Gandhi the man The best loved and most venerated political leader and moral evangelist of a near sub continent the idol of millions has been publicly murdered In India and Pakistan today every heart and every conscience should be searched to asses how far every heart and every conscience is answerable for this most fearful of tragedies The people of India and indirectly the people of Pakistan for he was trying to befriend both have added to their other losses the most grievous loss of all—the loss of Gandhiji

His majesty the King U K wrote The Queen and I are deeply shocked by the death of Mr Gandhi Will you please convey to the people of India our sincere sympathy in the irreparable loss which they and indeed mankind have suffered

The Prime Minister of Britain followed For a quarter of a century this one man has been the major factor in every consideration of the Indian problem He had become the expression of the aspirations of the Indian people for independence but he was not just a nationalist His most distinctive doctrine was that of non violence He believed in a method of passive resistance to those forces which he considered wrong The sincerity and devotion with which he pursued his objectives are beyond all doubt

Sir Stafford Cripps Chancellor of the Exchequer paid his tribute He stood out head and shoulders above contemporaries May not the whole world learn from his life something of fundamental value that it is idle to try to save ourselves from destruction by the use of force and that our greatest weapon of salvation is the supreme and redeeming power of love Non violence for him was not a negative policy it was much more than that It was the determination that the power of love should triumph a determination based upon a deep and unshakable belief in that power He never took the view that he must divorce his religion from his everyday life Religion was his life and his life was his religion He was no simple missionary Combined with his religious outlook was his lawyer trained mind quick and apt for reasoning He was a

formidable opponent for argument and would often take up the attitude that his views and the policy he was advocating had come to him in his meditations from God and then no reasoning upon earth could make him depart from them He stood out head and shoulders above all his contemporaries as one who believed and who fearlessly put his beliefs into practice I know no other man of any time or indeed in recent history who forcefully and convincingly demonstrated the power of the spirit over material things

Lord Listowel paid his tribute So wise a counsellor so kind a friend so unique a master Gandhiji was one of those rare beings who represent in the course of their own lives an everlasting struggle between good and evil The pain and suffering of the world became his suffering His death will surely prove the fact and greatest of his victories

Lord Mountbatten, former Governor General of India says India indeed the world will not see the like of him again, perhaps for centuries Our one consolation in this hour of unparalleled grief is that his life of truth, toleration and love towards his fellows may inspire our troubled world to save itself by following his noble example

Dean of Canterbury Deathless child of God I rejoice to think that Canterbury showed him ho pitality at that rather bitter period of his life I rejoice to think of what he has done for India Mahatma Gandhi is not dead Mahatma Gandhi lives The children of God never die

Mr Kingsley Martin Editor *New Statesman & Nation* London The Mahatma did not teach a soft doctrine of complacence but he did like Jesus Christ convince millions of people that the only alternative to an endless succession of hates and wars was to realise that truth and love were the supreme methods of warfare for the only true victory is to turn your enemy into your friend I was present when Mahatma Gandhi held his prayer meeting at Mehrauli Tomb as part of his brave and beneficent campaign to end hatred and bitterness between Hindus and Muslims People sometimes speak as if the western world is incapable of appreciation of such a life a Gandhi s But they sometimes forget what Gandhi always remembered that Christ himself taught a doctrine that was closely akin to ahimsa

The New Chronicle London, The darkness which is over the earth today is but the deepening of a shadow which has fallen across all generations of men The murder of Mahatma Gandhi is something far more terrible than any political crime It belongs to the supernatural realm of high religious tragedy The hand that killed the Mahatma is the same hand that nailed the Cross It is the hand that fired the faggots It is the hand that through the ages has been growing ever more mighty in war and less sure in the pursuit of peace It is your hand and mine Yet after the work of the Mahatma it is not too presumtuous to hope for a miracle It may be that the death of this leader who was held in so much reverence by so many millions will raise men to heights they have not hitherto attained It may be that love against which the gun has no power will evoke out of this great tragedy the beginnings of peace and unity for India Now in the pain of Mahatma Gandhi s death it is possible to realise how lasting and how strong is the faith which he preached Now we can see that the light which was kindled in the East has not been put out but is made one with the white radiance of eternity

Leon Blum in *Le Populaire* I never saw Mr Gandhi I do not know his language I never set foot in his country and yet I feel the same sorrow as if I had lost someone near and dear The whole world has been plunged into mourning by the death of this extraordinary man

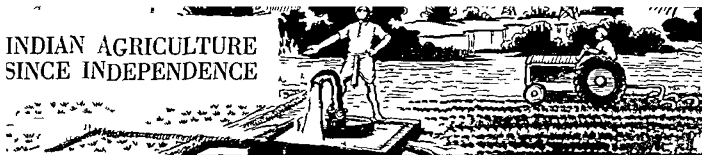
M Maurice Schuman Gandhi s blood will accomplish the miracle which he had wrought in the last days of his life by his supreme fast For the victories achieved by calculated violence over obstinate non violence are always apparent and temporary The Mahatma will have the last word

The tribute from Albert Einstein was equally pathetic, He died as the victim of his own principles, the principle of non violence He died because in time of disorder and general irritation in his country, he refused armed protection for himself It was his unshakable belief that the use of force is an evil in itself that therefore it must be avoided by those who are striving for supreme justice to his belief With his belief in his heart and mind he has led a great nation on to its liberation He has demonstrated that a powerful human following can be assembled not only through the cunning game of the usual political manoeuvres and trickeries but through the cogent example of a morally superior conduct of life The admiration for Gandhiji in all countries of the world rests on recognition mostly sub conscious of the fact that in our time of utter moral decadence he was the only statesman to stand for a higher level of human relationship in the political sphere This level we must with all our forces attempt to reach We must learn the difficult lesson that an endurable future of humanity will be possible only if also in international relations decisions are based on law and justice and not on self righteous power, as they have been up to now

Gandhiji left his last message a day before his assassination Death is a true friend It is only our ignorance that causes us grief He had once said earlier When this body is no more there will not be separation but I shall be nearest to you This promise is the hope of future generations He is dead in body but his presence is still alive His gospel is now preached by his two closest disciples—Nehru and Vinoba Bhave Nehru has carried out his message into the international field, while Vinoba Bhave is carrying the torch in hand to usher in a Swaraj based on love and Ahimsa There could be no more glorious end to Gandhiji s own liking than what happened to him We may be the poorer by his absence we may no longer have his guidance in person but the living presence is always there and his message of Ahimsa will triumph What Jesus Christ did in the West and Budha in the East Gandhiji has done for entire humanity It was his destiny and mission to fulfil and correlate Christianity Islam Budhism and Hinduism and to evolve a process of Humanism which will be the religion of Man in times to come



INDIAN AGRICULTURE SINCE INDEPENDENCE



PUBLIC memory is proverbially short It tends to concentrate on immediate problems and difficulties forget much greater difficulties which faced the country in the past and take almost for granted the improvements which have taken place already It is true that we are not yet out of the wood and a lot remains to be done before we can feel reasonably satisfied Nevertheless we shall be doing injustice to our millions of farmers and other workers in the field of food and agriculture if we do not take note of the amazing improvements that have taken place in the country since the dark days of 1946 47



India obtained her independence under circumstances which were by no means propitious India had become the base for the largest military operations that had ever been seen in the history of the Far East She had to feed large armies not only on her own soil but also abroad There was severe fighting right on her eastern borders The Japanese invasion of Burma cut her off from the large supply of rice which she used to get from that country The entire transport system of the country became dislocated There was a famine in Bengal which caused the death of over 3 million people There was a diversion of resources from productive purposes to military purposes which resulted in a sharp deterioration in the economic life of the country There was a galloping inflation which led to black marketing and other evils and caused all round demoralisation in the society Last of all came the communal riots and then the partition which completely dislocated the country s economy Fifty million refugees came from Pakistan to the Indian Union in a completely destitute condition and had to be rehabilitated Millions of acres of land were left fallow by people who migrated to Pakistan While the Indian Union got a share of 82% of the population of undivided India it obtained only 69% of the irrigated area 75% of the production of food grains 60% of cotton and 19% of jute A large number of people in the country faced famine and starvation and hundreds of thousands of workers employed in the cotton and jute mills faced the threat of



unemployment because of a shortage of these raw materials The balance of payments position of the country became very critical because she had to import millions of tons of foodgrains and the exports of cotton jute and their manufactures which were her main foreign exchange earners went down drastically Foreign observers made all sorts of gloomy prognostications about the future of India and some even predicted that India would go down in an unparallelled economic and political chaos But even this was not all In 1949 came the devaluation of the Indian rupee which gave an additional spurt to the inflationary pressure Then came a series of bad years—years of unprecedented drought which reduced the food production of the country to an all time low in 1950 51 and 1951 52 when production was even lower than in 1942 43, the year of the Bengal famine There was threat of famine in Bihar and a number of other places in the country And yet the country did not go under The country girded its loins to face this series of misfortunes Its first task was to heal the wounds of partition and control the evil forces of inflation and black marketing which the War had let loose It set about to make good the shortage of foodgrains cotton jute and other essential commodities It launched a large scale irrigation programme to avoid the menace of drought made heroic efforts to ensure that the system of distribution worked smoothly and that inflation was brought under complete control and no one consumed too much food at the expense of the starving and the needy One of the many instances of the success of Independent India was that although in 1950 51 the year of Bihar famine production was much lower than in 1942 43 the year of the Bengal famine there was scarcely any death from starvation in 1950 51 as against 3 million deaths in 1942 43 An even greater success was achieved in subsequent years when the Indian economy which was a chronically deficit one in foodgrains for the last 30 years was transformed into a surplus one in 1953 54 The story of this achievement is a fascinating one It is a story of how a dependent people who had very little experience of modern administration and who were considered to be technically too backward by many of their erstwhile rulers to be able to manage their own affairs successfully took charge of the Government brought under control unprecedented forces of chaos and dislocation and launched a programme of development which transformed the entire economic situation in the country as it were by a miracle It was certainly no mean achievement that the country was able to rehabilitate the economy from the ravages of war and partition in only 4 years from 1947 48 to 1950 51 launch the First Five Year Plan of economic development in the fourth year of freedom and carry it out in such a manner that in three years time it could solve the problems of major shortages on the food and agricultural front

It may not be out of place here to give a few figures to illustrate the progress that India has made in the field of food and agriculture since Independence The index number of agricultural production in India (base 1949 50 = 100) which stood at 96 2 in 1946 47 and 100 in 1949 50 went up to 114 in 1953 54 It is true that some of the improvement between 1949 50 and 1953 54 was due to an improvement in weather conditions but there can be no doubt that a large part of it was due to the efforts which the Government and the people of India had put in to improve their agriculture For in the following year that is 1954 55 when weather conditions were not so good as in the previous year the index number of agricultural production continued at the same high level namely 114 In fact some of the experts have been so impressed by this amazing improvement in agricultural productivity in India that they have even gone to the length of saying that this indicated a dynamic change in the pattern of agriculture in the country

Coming to individual crops the production of foodgrains which was only 49 4 million tons in 1946 47 and 50 million tons in 1950 51 went up to as much as 68 4 million tons in 1953 54 On account of adverse weather conditions the production no doubt declined to 65 8 million tons in 1954 55 but this was still not only much higher than what it was in 1950 51 or 1946 47 but was substantially higher than the target of 61 6 million tons which was fixed under the First Five Year Plan for the year 1955 56 The production of oilseeds which was 5 1 million tons in 1946 47 as well as in 1950 51 went up to 5 4 million

tons in 1953 54 and 5 9 million tons in 1954 55 against a target of 5 5 million tons fixed for the year 1955 56 under the First Five Year Plan The production of cotton went up from 2 2 million bales in 1946-47 and 2 9 million bales in 1950 51 to 4 million bales in 1953 54 and 4 3 million bales in 1954 55 as against a target of 4 2 million bales in 1955 56 The production of crystal sugar which was 0 91 million tons in 1946 47 and 1 12 million tons in 1950 51 reached the record figure of 1 6 million tons in 1954 55 as against the target of 1 5 million tons fixed for 1955 56 It is only in the case of jute that the progress has not been so satisfactory But even here the production which was only 1 3 million bales in 1946 47 has been stepped up to 3 2 million bales in 1954 55 as against the target of 5 4 million bales for 1955 56

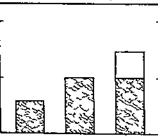
These achievements may appear to be near miracle but they were nevertheless the result of very hard work done by the people of India Some idea of the effort which has gone into making these achievements possible may be obtained from the following figures In 1946 47 there was no irrigation tubewell sunk in the country Between 1947 48 and 1954 55 as many as 5 573 irrigation tubewells have been sunk and the programme is to raise this cumulative figure to 7 227 by 1955 56 An additional area of 5 1 million acres of land was brought under minor irrigation between 1947 48 and 1950 51 and another 8 1 million acres between 1951 52 and 1954 55 By the end of 1955 56 altogether 16 1 million acres will be covered by minor irrigation Major irrigation works like Damodar Valley Bakhra Nangal Tungabhadra etc which were started after Independence and are acknowledged by even foreign observers to be great feats of engineering achievement are estimated to bring under irrigation 4 9 million acres by 1954 55 and it is expected that by the end of the First Five Year Plan they will irrigate as much as 7 3 million acres Between 1947 48 and 1953 54 10 8 lakh tons of chemical fertilisers were put into the soil and it is expected to put another 7 5 lakh tons by 1955 56 bringing up the total figure to 18 3 lakh tons The progress made in this direction since Independence may be gauged from the fact that while in 1946 47 only 0 2 lakh tons of chemical fertilizers were distributed in 1953 54 as much as 2 9 lakh tons were distributed The distribution of manures went up from 4 8 lakh tons in 1946 47 to 21 0 lakh tons in 1953 54 The total quantity of manures put into the soil between 1947 48 and 1953 54 was 102 lakh tons It is expected that by 1955 56 as much as 142 lakh tons will go into the soil It is obvious that all these measures must have increased the productivity per acre substantially and an indication of this may be obtained from the fact that the average yield per acre for rice rose from 739 lbs in 1947 48 to 82 lbs in 1953 54 of wheat from 599 lbs to 670 lbs of jowar from 369 lbs to 406 lbs of bajra from 303 lbs to 332 lbs of maize from 640 lbs to 709 lbs of cotton from 80 lbs to 90 lbs and of sugarcane (in terms of raw sugar) from 2 213 lbs to 2 859 lbs Apart from these attempts to increase the average yield per acre steps were also taken to bring new acreas under cultivation The Central Tractor Organization and the State Tractor Organizations brought as much as about 4 2 million acres of waste land under cultivation between 1947 48 and 1954 55 It is expected that by 1955 56 this cumulative total figure will go up to about 5 million acres The total production potential thus created in terms of foodgrains amounted to 5 9 million tons between 1947 48 and 1953 54 and is expected to reach the figure of 8 2 million tons by the end of 1955 56 All these have involved an investment in agriculture to the tune of Rs 80 2 crores between 1947 48 and 1953 54 by the Central Government alone An idea of the increasing tempo of investment in agriculture since Independence may be obtained from the fact that while in 1946-47 the Central Government spent only Rs 2 6 crores for food production the expenditure sanctioned by them in 1954 55 was as much as Rs 35 1 crores

Besides the normal Grow More Food measures the Government launched in October 1952 a National Extension Service on a country wide scale The Community Projects and National Extension Blocks managed by this Service have already covered 1 06 lakhs of villages and 68 5 million people the target being to cover the entire rural area by 1960 61 An expenditure of Rs 21 3 crores has been incurred

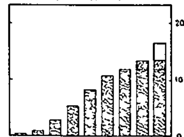
PROGRESS OF IRRIGATION AND AREA RECLAIMED

(PROGRESSIVE TOTALS OVER 1947-48)

(a) MAJOR IRRIGATION WORKS†



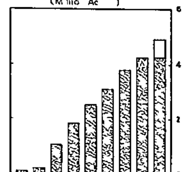
(b) MINOR IRRIGATION WORKS



TUBE WELLS SUNK



AREA RECLAIMED

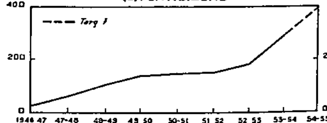


† Progressive totals over 1950 51

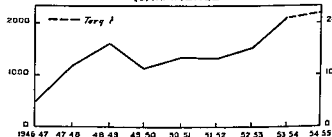
GROW MORE FOOD

A SUPPLY SCHEMES-DISTRIBUTION

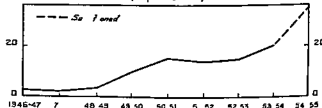
(a) FERTILIZERS



(b) MANURES



B EXPENDITURE INCURRED BY CENTRAL GOVT



by the Central Government so far on this Service The Service has thousands of trained village workers one each for a group of 5 to 10 villages and hundreds of experts on agriculture animal husbandry cooperation and other related subjects at higher levels and its object is to bring to the farmer the results of modern science and technology and to train him so as to improve his efficiency to the maximum extent possible

It is true that the efforts put in so far are still too inadequate and have only touched the fringe of our colossal problems of poverty and backwardness Yet the achievements are by no means small The effect of the progress described above on the general economic life of the country may be seen from the fact that our food imports which amounted to 23 3 lakh tons in 1947 and had gone up to as much as 47 3 lakh tons in 1951 in the dark days of the Bihar famine declined to only 7 7 lakh tons in 1955 Even this small import in 1955 is not required to meet any deficiency in our food supply but only to build up a reserve stock against future emergency Our consumption of cereals per adult has gone up from 13 5 oz per day to 14 8 oz Taking all food stuffs together our per diem calorie intake rose from 1860 calories (or 1600 calories per capita) to 2 100 calories per adult (or 1800 calorie per capita) Our per capita availability of cloth per annum has gone up from 11 5 yards to as much as 15 3 yards The per capita national income (at 1948 49 prices) in respect of agricultural sector increased from Rs 174 9 in 1948 49 to Rs 188 8 in 1953 54 and for all sectors from Rs 246 9 in 1948 49 to Rs 266 5 in 1953 54 The index number of wholesale prices of all commodities has gone down from 457 5 in 1951 to 357 3 and of cereals from 490 to 378

These achievements by themselves are no doubt very encouraging but what is more important is that they have helped to create conditions for much faster progress in future Thanks to the efforts put in during the last 8 years a sound base has been created for the agricultural economy of the country on which we are now in a position not only to build a sound agricultural structure but also a sound industrial structure We are now in a position to think of a much bolder programme for our Second Five Year Plan In fact while the increase in national income is estimated to be of the order of 13 to 14% during the First Five Year Plan period an increase of as much as 25% is now considered to be within practical politics for the Second Five Year Plan period Our irrigation works are every day making more and more water available to the cultivators Our factories are every day providing increasing supplies of chemical fertilizers, insecticides and agricultural implements Our agricultural and animal husbandry colleges have been reorganized to train up a steadily increasing number of qualified workers for the implementation of our development programmes Steps are being taken to set up regulated markets to establish a network of warehouses throughout the country and to strengthen the structure of rural banking so that the cultivator may easily get all the credit that he wants and may not have any undue worry about the price at which he is able to sell his produce Zamindars and other intermediaries have been abolished in a peaceful way and the tenant is being given much better rights on land than ever before Our administrative machinery today is in good gear and our farmers are in good mettle and there is no reason why we should not be able to make rapid progress now that we have been able to get going so far as the agricultural front is concerned

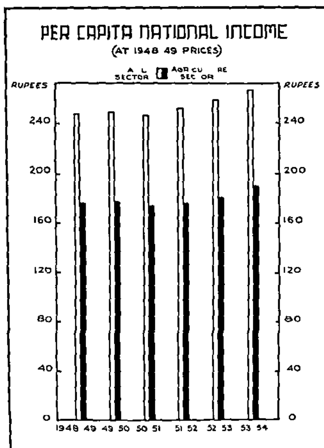
There are however a few people who from time to time make unfavourable comparison between the progress achieved by our country and that in other countries A careful scrutiny of the facts will show that most of these unfavourable comparisons have no real foundation In fact there are very few countries in the world which have made such a good progress during the first eight years after Independence or during the first 4 years of the launching of their first plan of economic development For instance while during the first eight years of our Independence our agricultural production has gone up by about 18 %

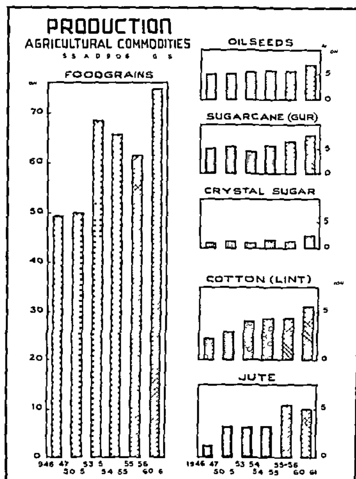
in the U S S R which is considered to be a model by some of these critics even 15 years after the Revolution of 1917 agricultural production was actually down by 12 8% During the First Five Year Plan of the U S S R the agricultural production actually declined by 4 4% while on the contrary our agricultural production has as mentioned earlier already shown an increase of as much as 14% during the first four years of the Plan The following table which compares the achievements in regard to the production of certain essential commodities during the first four years of India s First Five Year Plan and the entire five years of the First Five Year Plan of the U S S R may be of some interest in this context

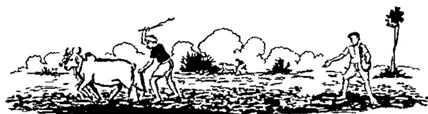
Commodities	U S S R First Five Year Plan (1928 29 to 1932 33) (Percentage increase planned for 1932 33 over the base year) Basic	Maximum	Percentage increase achieved in the fifth year 1932 33 over the base year	INDIA First Five Year Plan (1951 52 to 1955 56) Percentage increase planned for 1955 56 over the base year*	Percentage increase achieved in the fourth year 1954 55 over the base year
Foodgrains	(+) 36 4	(+) 44 7	(—) 4 4	(+) 14 1	(+) 21 9
Cotton	(+) 133 6	(+) 165 6	(+) 76 9	(+) 43 3	(+) 50 1
Sugar beet Sugarcane	(+) 66 3	(+) 94 1	(—) 34 7	(+) 12 5	(—) 1 3‡
Sugar (crystal)	—	—	—	(+) 34 4	(+) 42 9
Cotton textiles	(+) 59 0	(+) 71 4	(—) 0 8	(+) 26 4@	(+) 34 4@

* Base year is 1949 50 in the case of foodgrains and 1950 51 in the case of other commodities
‡ In 1951 52 an increase of 6 9% in sugarcane production over the base year 1950 51 was recorded
@Mill made cloth only

These comparisons with the U S S R have been made not with a view to taking undue credit to ourselves or to show that country in a relatively unfavourable light but merely to emphasise the point that improvement of economic conditions especially during the first few years of a nation s life is bound to be difficult and this point needs to be borne in mind by those who indulge in thoughtless criticism of our country We do recognise that in some respects in initial years the U S S R perhaps faced greater difficulties than we did She had to go through a world war a revolution a civil war and a revolt of the farmers More over she did not have any cooperation whatsoever from the rest of the world Under the circumstances whatever she did was certainly creditable and once she had been able to lay the foundation, her progress was very rapid On the other hand it should be also recognised that thanks to the peaceful manner in which we achieved independence and also our policy of dealing with vested interests like princes landlords or capitalists through the method of persuasion rather than of force we succeeded in paying much less a price than the U S S R had to pay That undoubtedly gave us a much better start than the U S S R had Be that as it may it must be admitted that India s performance during the first eight years of her freedom does not suffer in comparison with that of any other country Even in comparison with some of the very


PER CAPITA NATIONAL INCOME
(AT 1948 49 PRICES)
RUPEES
240
200
160
120
80
40
0
1948 49 49 50 50 51 51 52 52 53 53 54


PRODUCTION
AGRICULTURAL COMMODITIES
FOODGRAINS
70
60
50
40
30
20
10
0
OILSEEDS
SUGARCANE (GUR)
CRYSTAL SUGAR
COTTON (LINT)
JUTE



favourably situated countries of the West e g U S A and Canada which have much larger land and other resources per capita her rate of progress today does not show up very unfavourably Between 1948-49 and 1953 54 India s national income increased by an average of 3% per annum During the 21 years from 1929 to 1950 the national income of U S A increased by 3% per annum and during the 26 years from 1903 to 1929 that of Canada increased by 2 6% per annum

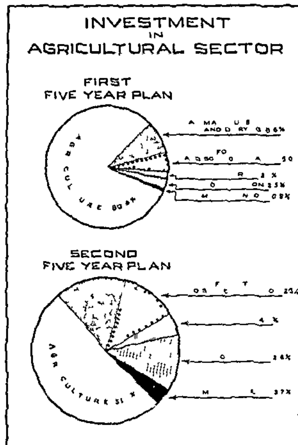
Although these figures may give us some encouragement, there is no reason whatsoever to be complacent Japan increased her national income by 6 7% per annum during the 23 years from 1914 to 1937 Our standard of living today is so poor compared to that of other countries and we have to make up such a long leeway that we have to make at least as much progress as Japan has done if we wish to take our rightful place in the economic field amongst the progressive nations of the world Reassuring as our progress has been so far it will be wrong to have a feeling of over optimism and to slacken our efforts In the first place about 83% of our cultivated area still depends on the vagaries of the monsoons Until we are able to provide assured water supply to at least 50% of our cultivated land we cannot say that we are really out of the wood so far as agriculture is concerned Secondly our population is increasing at the rate of about 5 millions every year requiring an additional amount of over 5 lakh tons of foodgrains even on a very conservative basis Thirdly with the growing urbanisation of the country there has been a considerable increase in the number of people who depend upon the surplus that the agriculturists bring to the market The marketable surplus in respect of foodgrains in this country is only about 30 to 40% of the total production Hence the problem before us is not merely to increase our food production but really to increase our marketable surplus in proportion to the increase in our requirements This obviously is a much more difficult task Besides our average standard of living today is still miserably low as compared to other countries Our shortage in protective and supplementary foods like milk fruits fish meat eggs etc which are so essential for a balanced diet is much greater than our shortage in cereals With an increase in the income of our people the demand for these foods as well as for clothing and housing is bound to increase very considerably Our agriculture will have therefore to put in much greater efforts than hitherto to meet increased requirements That is why the Government have decided that there should be no slackening of efforts on the agriculture front during the Second Five Year Plan In fact, it is proposed to increase our investment in agriculture under the Second Plan by about 45% over what was provided in the First Plan That is why it is proposed to increase our production of foodgrains to 75 million tons in 1960 61 as against 65 8 million tons produced in 1954 55 of cotton to 5 5 million bales in 1960 61 as against 4 3 million bales produced in 1954 55 of jute to 5 0 million bales in 1960 61 as against 3 2 million bales produced in 1954 55 of sugarcane (in terms of raw sugar) to 7 7 million tons in 1960 61 as against 5 5 million tons *produced in 1954 55, of crystal sugar to 2 2 million tons in 1960 61 from 1 6 million* tons produced in 1954 55 and of oilseeds to 7 0 million tons in 1960 61 from 5 9 million tons produced in 1954 55 It is also proposed to increase the production of fruits and vegetables spices cashewnut and other crops substantially The overall objective is to step up the index number of agricultural production to 135 in 1960 61 from 114 in 1954 55

Large scale schemes are also proposed to be launched for increasing substantially the production of protective foods like milk fish meat eggs etc Much greater importance is being paid under the Second Five Year Plan to schemes of animal husbandry dairying forestry soil conservation fisheries cooperation, etc compared to what was done under the First Five Year Plan

The programme of agricultural development under the Second Five Year Plan thus aims at a diversified agricultural economy which will not only increase the income and standard of living of the agriculturists but also sustain the tempo of development in other sectors of the economy Agricultural

development will be thus a necessary supplement to the development of the industrial sector Thereby not only will the additional demand for agricultural commodities generated by industrial development be met by an increased production of these commodities but also sufficient purchasing power would be generated in the agricultural sector to absorb the additional output of manufactured goods

A period of eight years is not a long time in the history of a nation But during these eight short years India has made a progress which far surpasses whatever advance she made during the last 50 years The present generation of Indians may be rightly proud that through their blood sweat and tears they are laying the foundation for a future India—a sound foundation for which the future generations will be thankful and on which they should be able to build a noble edifice worthy of their great heritage





PLANNING

PLANNING AND THE REORGANISATION OF THE INDIAN ECONOMY

WHY do countries plan ? The question is worth asking If we survey the uses to which the expression has been put since the thirties all over the world we would observe a whole range of motivations and a great variety of plans Within the same country at different stages the expression takes on new meanings purposes change new instruments are found Perhaps behind all planning there is a common realisation that the play of individual interest the search for profit and the working of market forces create serious weaknesses in a national economy Weakness may lie in the small amount of wealth that is raised or in its distribution or in meeting new problems which arise from time to time The State is under constant compulsion to intervene to take hold of the economy as it were and direct its resources to given ends

The objects in view may be short term as in rehabilitation and reconstruction planning which many countries adopted to repair the damage done by the war They may be of an emergency character as in preparing for a war or fighting it through , Germany s four year plan comes to mind by way of example Some elements of planning enter into any action taken to cope with an emergency witness in the United States the extraordinary scope of measures which together added up to the New Deal For the greater part however planning is conceived of as a way of fighting poverty of developing natural material and human resource and of ensuring a fair distribution of production within society

The pattern of production and the manner in which its instruments are owned and operated in a community also provide much of the explanation for its scheme of distribution Abstractions such as

State' have been to a large extent a reflection in terms of power and authority of the distribution of the main instruments of production—land, mines and industrial plants—and of the financial institutions that enable these instruments to work The introduction of democracy and the universal vote makes the have nots also a partner, or at any rate, a potential partner in the authority of the State When comparisons are made between the greater ability of some countries than of others to plan the pressures which democracy exerts on the methods and motives of economic planning are sometimes overlooked The measure in which the people are able to express themselves determines very largely how far planning will be a mean for fulfilling the total public interest Public policy has to take account of existing facts the current apparatus of production and other factors but it must ever look beyond the limiting circumstance of the moment to the scheme of institutions and human relationships which sets the goal

A comparative study of the factors which determine the main contours of public policy in different countries over the greater part of Asia shows how fortunate India has been in her preparation for planning For more than 15 years before the war the welfare of the peasant and the worker and the need to limit the power of private interests had been the theme of numerous resolutions in the Indian National Congress The National Planning Committee before the war undertook valuable studies and although its work was unfinished it left a stamp on public thinking The method of planning was widely accepted but its content was uncertain The Bombay Plan was a bold piece of work in many way but because it was somewhat lacking in social vision and saw the problem of planning as being mainly one of spending on development, its influence on public opinion was not very lasting There were deeper urges in national development which this plan left unsatisfied

The filling in of social and economic policy was to be undertaken as soon as freedom came Unexpected events however put off matters until early 1950 when the new Constitution came into force and India became a Republic This had been preceded by more than two years of economic ferment which included refugee movements rehabilitation programmes decontrol and re imposition of controls uncertainties in import policy devaluation of the rupee persistent shortage of food and raw materials and a considerable amount of inflation During this period short term problems continually pressed upon public attention and problems of national planning were for a while pushed into the background

II

It was in this situation that the Planning Commission was et the task of preparing the first national plan of social and economic development The integration of princely territories with the rest of the country had made the task politically feasible This great gain was however counterbalanced by the fact that the first plan had certain urgent and critical problems to wrestle with notably inflationary pressure hortage of food and raw materials and the rehabilitation of rail transport These problems might easily have come in the way of formulation of more fundamental views about the economic structure which was to be built up and the speed with which this was to be brought into existence

There is no inherent conflict between immediate economic tasks and basic social policy so long as both are een as part of the ame perspective This was the approach in the First Five Year plan While concentrating resources on increasing agricultural production and insisting that the existing machinery of industrial production (most of it in the private sector) should be fully utilised it provided atleast the first framework of a social and economic policy which had in it all the elements of what has since been described as the socialistic pattern of society It was expected that the first steps which the Plan recommended would steadily lead in the words of the Constitution to a social order in which justice social economic

investment The belief that government should take up mainly basic industries has its own logic, but it is associated also with an earlier situation when governments were uncertain of their control over economic life as a whole and felt it important to occupy various key points It might therefore be difficult to maintain for very long the view that the institution of suitable forms of public management for private management in existing industrie and branches of commercial activity has a low priority for stepping up the rate of economic development the opposite is more likely to be true

The significance of the public sector consists less in the fact that it is a sector operated by or under the direction of government as in the fact that it is worked in community interest and its profits go to the community as a whole The same purpose can be secured in several parts of the economy through the expansion of the cooperative sector The cooperative principle is essentially a way of reconciling social interest with the claims of individuals It achieves community management without identifying it with State management to that extent it protects the freedom of individuals and groups against encroachments both from the authority of the State and from the pursuit of narrow interest by individuals functioning directly or through various forms of company organisation Cooperative forms of operation management and ownership are especially suited to agriculture rural trade and small industries and much construction work and supply of consumer goods in urban areas can also be undertaken through them These fields are therefore marked out clearly enough for development through the cooperative sector The scope for this sector was not defined sufficiently clearly in the First Five Year Plan and the steps taken can be described best as being of a preparatory character—survey of problems establishing certain leading institutions and training of cooperative personnel The task of building up a large cooperative sector on sound lines remains over for the Second Five Year Plan

The growth of the cooperative and public sectors will be greatly facilitated by the establishment of the State Bank of India This is one of the outstanding developments of the first five year period which indicated a degree of preparedness to reconsider the role of all financial institutions and their organisation in terms of the needs of economic development

Planning in India as in other democratic countries assumes the existence of a private sector of appreciable size There is no desire to concentrate all activities in the public sector There is indeed a body of opinion in favour of private initiative and enterprise which would enable small men in particular to develop new economic activities and enhance their contribution to the national output The existence of such a free sector in fields which do not fall appropriately into the public sector or the cooperative sector is recognised as a valuable feature of Indian planning Institutions such as State Finance Corporations the Industrial Finance Corporation and the Industrial Credit and Investment Corporation of India have their *raison d etre* in this widely held view There is however one section of the private sector which while it continues has enormous importance for national planning and for the working of the economy as a whole namely organised industry The Industries Development and Regulation Act of 1951 embodied a certain view as to the functioning of the organised private sector in relation to planning The place which this sector comes to occupy in the future economic structure will depend largely on the effect given to this legislation in letter and in spirit

The organised private sector is expected to fall within the framework of national planning for instance for the determination of production targets location of enterprises linking wherever necessary with particular sources of supply for raw materials and to the extent possible assigning the manufacture of parts or accessories or of stages in production to small scale units In the second place while planning within the private sector cannot be as detailed as in the public sector the agency for such planning is conceived to be a development council in each industry or group of industries which includes representatives of

management labour technicians and consumers and assumes a degree of responsibility for the overall development of the industry In the third place conflicts between labour and management which are so conspicuous a feature of the economic history of western countries have little place in an under-developed country seeking to establish a welfare State by mobilising all the available resources These various considerations form part of the approach of the First Five Year Plan To some extent they have been implemented but greater attention has to be given to them in the Second Five Year Plan

To bring about an economic framework in which the public sector the cooperative sector the organised private sector and the field of individual enterprise and initiative are moving towards a state of stable relative balance between one another the problem of inequalities in income and wealth calls for a fresh approach In under-developed countries if the distribution of wealth and income is left to take care of itself increased development expenditure introduces greater distortion and the balanced structure aimed at cannot be established Reduction in disparities in income and wealth is a complex process which requires on the one hand a rapidly growing economy with increase in the volume of employment and steady expansion in social services and on the other specific measures of redistribution The latter fall broadly into two groups namely, those relating to land and those which bear on the disposal of income and wealth generally The progress of land reform during the first plan period has prepared the ground for the imposition of ceilings on agricultural holdings Conditions are now also ripe for definite steps in relation to the redistribution of income and wealth

Redistribution of land will intensify the basic problem of agriculture as an industry namely small and uneconomic agricultural holdings There is general recognition that the unit of management in agriculture has to be enlarged if agricultural production is to increase in adequate measure and the full benefits of extension services of new techniques and of investment undertaken by the government are to be realised In principle it is agreed that it is mainly through cooperative farming and the success of cooperative village management that the unit of management in agriculture can be enlarged and land resources fully developed Proposals made on this subject in the First Five Year Plan were not followed by practical action to any extent Perhaps the increase in agricultural production achieved during the last few years may have even contributed to a temporary shifting of interest from the fundamental problems of Indian agriculture The reorganisation of agriculture as an industry through enlargement of the unit of management is a far reaching objective on which it is imperative that substantial progress should be made during the second Plan

In an economy in which there is an enormous amount of under-employment in rural areas agriculture is small scale and intensive in character and instead of decrease in numbers dependent on land it may take a few years before the increase in employment opportunities comes to be commensurate with the growth in population the pattern of industrialisation has necessarily to be different from that evolved in the more advanced countries This subject has recently been considered by the Village and Small scale Industries (Second Five Year Plan) Committee which while confirming the approach adopted in the First Five Year Plan has elaborated the idea of decentralisation in industry Decentralisation is a two fold process namely on the one hand securing production to the maximum extent through small scale units and on the other dispersing industry to small towns which are linked as far as possible with the surrounding rural areas Next to the reorganisation of agriculture including agricultural marketing and processing and the organisation of rural trade on cooperative lines the development of village and small industries as an integral part of an expanding and technologically progressive economic structure is the most vital task for the next few years Over the decades as industry and commerce have expanded the industrial and rural economies have in some ways fallen apart Planned economic development has meaning in the measure

in which it achieves integration between the industrial and the rural economies so that their parallel and inter dependent growth brings the maximum benefit to the economy as a whole and more especially to those sections of the rural population which are in a position of disadvantage in terms of income standard of living and employment opportunity

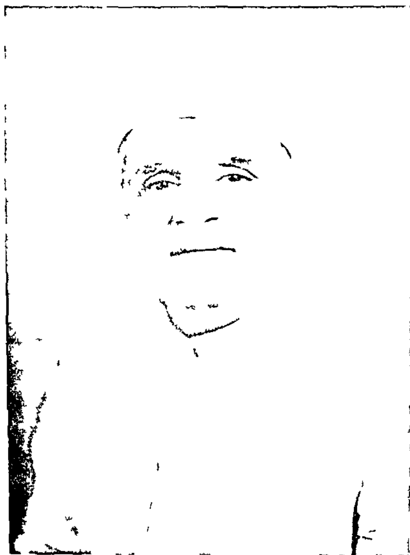
None of the problems of reorganisation of the economy which have been briefly set out above are new They have existed much in their present form for more than half a century and, more actually during the past 20 or 30 years Sometimes they have been taken for granted without sufficient practical attention being given to them During the past eight years greater progress had been hoped for The success of the First Five Year Plan and the achievement of many of its material targets has emphasised the need to place these problems in the forefront of programmes for the next planning period Success in the Second Five Year Plan will be judged less by the tests which were so far acceptable as by the measure in which the basic problems outlined above are resolved and the socialistic pattern of society brought nearer



Shri U N Dhebar



Shri Bhim Sen Sachhar



A Moralist in Politics

OUR CONSTITUTION

For forms of Government let fools contest
That which is best administered is best

WE have left behind the age of benevolent despots in whose favour Sir Alexander Pope defended any system of government which happened to perform its functions efficiently The dictum has no relevancy in a democratic society where emphasis is on self government by the people The Constitution of India is a happy blending of two divergent thoughts one purely idealistic and the other severely practical While the Constitution invests the units or the states with internal self government there is provision for taking all their powers in times of emergency or deadlock by the President Again the local governments within a State like Panchayats district boards or municipalities may be superseded by the State Governments which exercise full control over these institutions While our Constitution has kept in view the practical aspects of a sound administration it has also scrupulously preserved the principle of the sovereignty of the people

It would be beyond the scope of this chapter to be anything more than the barest outline of the historic background of our Constitution After the second world war the shape of political destiny of India had assumed a clearer perspective and the British Government made sincere efforts for the transference of power The failure of the Cripps Mission was something of a set back but the Cabinet delegation which was thereafter sent to India was instructed to arrive at some agreed settlement The All India Constituent Assembly came into being on 9th December 1946 but unfortunately it could not achieve very much owing to the intransigence of the representatives of the Muslim League Party who kept on demanding a separate Constituent Assembly for the Muslim portion of British India

The outstanding achievement of the Constituent Assembly before the passing of the India Independence Act was the historic objectives resolution of 22nd January 1947

The India Independence Act passed by the British Parliament set up with effect from 15th August 1947 two new dominions of India and Pakistan The Act did not provide any constitutional structure for these two dominions which were however empowered to lay down their own forms of Government without any further legislation on the part of the British Parliament The Constituent

Assembly of the Indian Dominion started its work The Constituent Assembly set before itself the task of giving a Constitution to India and for this purpose various sub committees were appointed including the Drafting Committee which presented a draft constitution in February 1948 The draft was considered by the Constituent Assembly clause by clause in its sittings which commenced on November 15 1948 and set up a record of achievement by concluding its proceedings on 26th November 1949, on which date the Constitution received the signature of the President of the Assembly The Constitution came into force on 26th January 1950 which is celebrated as a national event throughout the territory of India

Though a part of the administrative framework of our Constitution is largely borrowed from the United States of America Canada and Australia the pattern of government follows closely the British parliamentary system The Drafting Committee adapted features of other governments to the peculiar conditions of India and it is a tribute to their wisdom as also to the genius of the Indian people that the Constitution has so far worked well The chapters on fundamental rights and directive principles of policy have a special significance for the people of India, though the concept of laying down such principles in this form is not new

II

Though the Constitution of India like that of the United States of America is written it has the merit of relative flexibility as opposed to the rigidity of the American Constitution A rigid constitution is one which broadly speaking cannot be amended except by a special process and has an authority superior to that of the other laws of the State The flexible constitution on the other hand permits all laws to be passed in the same manner The best illustration of a flexible constitution is that of the United Kingdom A bill for changing the constitution of the House of Commons can be enacted with the same facility as the investment of fresh powers to a local authority A bare parliamentary majority is all that is required to bring about the most revolutionary legislation in Great Britain In the United States of America on the other hand an amendment of the Constitution can be initiated at the instance of two thirds of both Houses of Congress or by a convention called by the Congress at the request of the legislatures of two thirds of the States Amendments initiated by Congress or by convention may be ratified either by the legislatures of three fourths of the States (which are 48 in number) or by a convention of three fourths of the States, as the one or the other mode of ratification may be proposed by the Congress In practice it means that 13 States with a combined population of less than that of the single State of the New York can prevent the remaining 35 States from realising their will in other words one tenth of the population can obstruct the will of the nine tenths No wonder there have been only 21 amendments of the Constitution in the United States of America since its inception in 1789

Some parts of our Constitution may be amended by a simple majority in both Houses of Parliament Under Article 4 for instance new States may be created and the boundaries of existing States re arranged by a vote of a bare majority of the two Houses of Parliament Again Parliament, according to Article 11 may make any provision with respect to the acquisition and termination ' of citizenship and matters ancillary thereto by a bare majority A greater part of the Constitution however, could be amended by a majority of the total membership of not less than two thirds of those present in each House of Parliament In the words of Pandit Jawahar Lal Nehru While we want this Constitution to be as solid and permanent as we can make it there is no permanence in constitutions There should be a certain flexibility If you m ike anything rigid and per[illegible] nt you stop the [illegible] ion s growth the growth of a living vital organic people In any event we [illegible] t make this C[illegible] ion so rigid that it cannot be adapted to changing conditions When the wo[illegible] urmoil and [illegible] assing through a very swift period of transition what we may do today ma[illegible] olly appli[illegible] rrow

The amendments which have been made to our Constitution since 1950 show that its framers intended it to reflect the voice of the prevailing opinion and sentiments

The Constitution has provided for a distribution of powers between the Government of the Centre and the Governments of the different units called States composing the Union of India These units at the moment are classified into part A part B and part C States but as a result of the recommendations of the States Reorganisation Commission it is expected that all States would assume the same status except for a few areas which would be centrally administered The powers between the Union and the State Governments are classified under lists 1, 2 and 3 respectively called the Union the State and the Concurrent Lists The unspecified or the residuary powers are to be exercised by the Union * This is in sharp contrast to the American Constitution where the Federal Government can exercise only enumerated powers while the residuary powers vest in the States According to some authorities the true test of a Federal Government is that powers of the Central Government should be enumerated and the residue left to the State Governments Lord Haldane went so far as to say in the case of *Attorney General for the Commonwealth of Australia vs Colonial Sugar Refining Co Ltd* that the Canadian Constitution which by virtue of the British North America Act 1867 vested the residuary powers in the centre could not be regarded as federal This does not appear to be the correct view and the Constitution of India although it vests the residuary powers in the Central Government is federal in the sense that powers are divided between the Centre and regional governments within coordinated and independent spheres

Like many written constitutions the constitution of India lays great emphasis on the enjoyment by its citizens and residents of certain fundamental rights Broadly speaking there is to be equality before law for all persons residing in India and this privilege is not confined to the citizens of India As for its own citizens no person is to be denied his right or opportunity on grounds of religion race caste sex place of birth residence or any one of them There are to be no privileged classes and untouchability which used to be the bane of the country has been abolished The citizens of India are to enjoy the seven freedoms of speech of assembly of association of movement of residence of dealing with property and of following an avocation These are to be curtailed only in the interests of general social and public order In a land of many religions and languages it is truly remarkable that no predominance or superiority is given to the tenets or doctrines of any faith There is no established Church in India and Article 25 guarantees freedom of conscience and the right freely to profess practise and propagate religion This provision in the Constitution is an impressive proof of the Indian instinct of tolerance It is a matter for pride that toleration and secularism should have been achieved in our country without any strife or controversy when in other countries wars have been waged for centuries for even a partial attainment of this objective

The right to hold property has been subjected to some kind of compromise and it cannot be said that even now a stage of finality has been reached On the one hand Article 31 declares that no person shall be deprived of his property save by authority of law the right of eminent domain which is a true attribute of sovereignty has on the other hand been recognized in the succeeding paragraph of this Article Eminent domain is the right of a sovereign to acquire private property to be used upon making just compensation Our Constitution while recognising the existence of this right has thought it fit to surround it with appropriate limitations Property could be acquired for a public purpose on payment of compensation but it is to be observed that according to the latest amendment the basis of compensation provided by law is not a justiciable issue In other words the courts are not competent to go into the question whether a certain law provides for adequate compensation or not During recent years it has been found necessary to provide for exigencies when acquisition of property is to be made without payment of compensation It is the

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* Article 48

declared policy of our Government that the objective to be achieved is a socialist pattern of society and it would be impossible to attain this end if compensation is to be paid for acquisition of large zamindaris and other undertakings for a public purpose The Constitution has, therefore made a provision for acquisition of estates in the public interest or even the extinguishment or modification of rights in public utility under takings without payment of any compensation Such laws however must receive the assent of the President

The enforcement of fundamental rights, or their abridgement or curtailment are justiciable issues before the highest courts through the remedy of Writs of *Mandamus* by taking out appropriate *probition* and *Certiorai* and Habeas Corpus In addition to the fundamental rights which can be enforced through judicial process certain directive principles have been laid down for the guidance of the Governments concerned The foremost of these relate to the provision of adequate economic and political safeguards for the attainment of the ideal of social justice The village Panchayats the lowest democratic units have to be encouraged and organised There must be guaranteed right to work, to education and to public assistance in certain cases These must be provided a living wage for the workers and there should be provision for free and compulsory education for all the children The interests of the weaker and backward sections of the community should be promoted to prevent any social injustice and exploitation There must be an all round effort to bring about an improvement in the standard of living and health There must be a separation of the judiciary from the executive and lastly promotion of international peace and security is enjoined

III

The President who is elected through an electoral college by the indirect method of election is the head of the Indian Republic The Electoral College consists of the elected members of both Houses of Parliament and the elected members of the Legislative Assemblies of the States The election is based on the principle of proportional representation and it is intended that the weight of a State in the election of the President shall be roughly proportional to its population The President holds his office for a term of five years and his powers are very much like those of the British sovereign Herein lies the essential difference between the Presidential Government of the American pattern and the Parliamentary system as it prevails in England The Indian President is in reality the mouth piece of the Government in power unlike the American President who chooses his own executive irrespective of the party position in the Congress The President in India chooses the Prime Minister who in turn selects his colleagues of Council of Ministers All executive orders are issued in the name of the President and cannot be questioned if they are duly authenticated All the Ministers in theory hold office at the pleasure of the President

The President also enjoys legislative powers inasmuch as he issues Ordinances when the Legis lature is not in session but the power so exercised is in reality the power of the Government The President is to act in accordance with the provisions of the Constitution and he can be impeached for its violation on a charge being preferred by either Hou e of Parliament on the initiation of at least one fourth members of the House and the resolution being passed by two thirds of the total membership of the House On a charge being so preferred by one House the investigation of the charge takes place by the other and the President has the right to appear and to be represented at such investigation If two thirds majority of the total membership of the House by which the charge is investigated is of the opinion that it has been established a resolution to this effect shall result in the removal of the President from his office

There is the Vice President of the Union who acts for the President during his temporary absence but in case of a vacancy he does not take over as President for the remainder of the term as is the case in America In such a contingency a new President has to be elected The Vice President s term of office is also five years

Though the President acts according to the advice of the Government in power he may exercise

some of his functions independently of it The President under Article 81 has the power to dissolve the House of the People It is intended that that power should be exercised on the advice of the Prime Minister but it is conceivable that he may exercise this right independently of him If the majority in favour of the Government in power is nominal or the President has reason to believe that the opinion is overwhelmingly against the Prime Minister s Government he may dissolve the Parliament to obtain a fresh vote of the people This is a great reserve power, but such a prerogative is to be exercised only in the interests of the people Some of the critics have observed that the power under Article 85 is capable of being abused by an auto cratic President who is so minded and is not favourably disposed towards the party or the Government in power India has yet to develop her own conventions and the working of the Constitution so far augurs well for the future The President Dr Rajendra Prasad is an emblem of correctness in this respect and there has been the closest harmony between him and the Prime Minister Pandit Jawahar Lal Nehru Between themselves they have truly laid the foundations of a stable Parliamentary Government which in the last analysis can work satisfactorily when there is a respect for the law of the land both written and conventional The edifice of a parliamentary system can be laid only on the foundations of constitu tional conventions

The other important power which the President can exercise in accordance with the Constitution is his right to address and send messages to either House of Parliament That such a power is intended to be exercised independently is clear from the omission that such a message should be sent on the advice of the Government There is a provision in the Irish Constitution that a message of this character must receive the approval of the Government and if the framers of the Constitution had intended the discretion of the President to be similarly restrained it could have been so mentioned Thus it is possible that a hasty decision of the House may be reviewed on the impartial and sagacious advice of a true leader who occupies the position of President in times of internal strife and controversy There is of course the remote possibility of the misuse of such power and only time can show whether it is designed to ensure harmonious working of the Constitution

The President also has a right to veto Bills other than money Bills But this veto is really a request for reconsideration because if the Bill is again sent up to him he is bound to give assent to it The President has no power to appoint public servants of his own choice as in the case of the American President The Constitution of America is really based on the Doctrine of Separation of Powers as pro pounded by Montesquieu whose treatise on *Esprit de Lois* had created a profound impression in the minds of the eighteenth century thinkers The Founding Fathers who framed the American Constitution had drunk deep of the philosophy of Montesquieu who characterised the concentration of the executive legislative and judicial powers in the same person or body of persons as the very definition of tyranny To quote the words of Thomas Jefferson The concentrating of these three powers in the same hand is precisely the definition of despotic Government It will be no alleviation that these powers will be exercised *by a plurality of hands and not by a single one 173 despots would surely be as oppressive as one* Madison was equally emphatical The accumulation of all powers legislative executive and judicial in the same hands self appointed or elective may justly be pronounced the very definition of tyranny No concept of Government was so widely accepted by all the statesmen whose genius brought into being the American nation as was the doctrine of separation of governmental powers It is indeed interesting that Montesquieu propounded his theory on the impression which he derived from the working of the British Government of those times Now it is clear beyond dispute that the British system of Government is based on the closest linking of the executive and the legislature inasmuch as the majority party in the Parliament forms the executive of the State and it is surprising that Montesquieu should have arrived at an opposite conclusion because the Cabinet Government had come to stay in England at the time when he wrote

Our system of Government as opposed to that of the United States of America is based on the British Parliamentary model The Prime Minister who occupies the pivotal position in the executive provides the closest link between the legislature and the executive Government of the Union He is the leader of the party in power and is chosen as such by the President He reflects the majority view of the legislature to ensure the requisite co operation between the two arms of the State namely the legislature and the executive The President in America holds his office independently of the Congress and as the American history shows there have been times when his views on important national policies were in direct conflict *with those of the legislature*

Although the Council of Ministers chosen by the Prime Minister may be composed of members of both Houses it is collectively responsible only to the Lower House, namely, the Lok Sabha The Council of Ministers is collectively responsible to the House and the distribution of departments among the Ministers is a matter for the Prime Minister to determine A Minister on appointment need not necessarily be a member of Parliament nor need he necessarily resign on losing his seat But if for a period of six consecutive months he is not a member of either House of Parliament he automatically ceases to hold office

IV

The Union Legislature consists of two Houses of Parliament the Lok Sabha, like the British House of Commons and the Rajya Sabha which unlike the House of Lords is elected and partly nominated and not hereditary The Parliament s function is to criticise and legislate and it meets twice a year and not more than six months should elapse between the date on which it is prorogued and the commencement of the next session The Lok Sabha is elected on the principle of population and no weightage is given to the States as such It is so arranged that there should be one member for every 750 000 of the population and not more than one member for every 500 000 of the population so that the proportion between the number of members for and the population of a constituency is as nearly as possible uniform throughout India The delimitation of constituencies must be done by an Act of Parliament and the constitutional ratio between the number of members for a constituency and its population must be based on the last published census figures In the allocation of seats in the Rajya Sabha some recognition is given to the principle of State representation but it is not equal representation for each State as is the case in America For instance Assam sends six members to the Rajya Sabha whereas Uttar Pradesh has a quota of 31 Moreover the President can also nominate persons for the Rajya Sabha which is not exclusively confined to elected members It may also be mentioned that the number of seats allocated to different States may be altered as a result of reorganisation of boundaries A portion of the Rajya Sabha is elected by proportional representation with a single transferable vote

The term of the Lok Sabha is five years while the Rajya Sabha is renewed by the retirement of one third of its members every second year The Rajya Sabha provides adequate opportunities for persons of eminence and experience who are not disposed to take part in electioneering or to make politics a profession Each House of Parliament regulates its own procedure and it has been so prescribed as to ensure adequate discussion of the measures which the Government in power wishes to introduce As in other countries it is provided that blocking or filibustering could be adequately restrained and kept within bounds

V

The component parts of the Union are called States and though they are not strictly speaking federating units sufficient provision has been made for a large measure of self government consistent with national security and well being As has been pointed out before the residuary powers vest in the Union and this makes the Centre comparatively stronger and the States relatively weaker At present there are

three categories classified as Part A part B and Part C States Part A States roughly speaking are the provinces which formed the British India before August 1947 while part B states constitute what was princely India of pre independence days Part C territories are a very small proportion of the total area and comprise the small units like Ajmer Bhopal Delhi Himachal Pradesh etc As a result of the Report of the States Reorganisation Commission Part C States are expected to be abolished altogether while part B States will be merged in part A States which will be reorganised more or less on linguistic and administrative considerations

The head of each State is the Governor for part A States and Rajpramukh for part B States In either case he is a constitutional figurehead and acts on the advice of Council of Ministers headed by the Chief Minister The Rajpramukh is usually a representative of the ruling family of the senior units which formed the State Like other executive heads the Governor or a Rajpramukh cannot hold any other office of profit and has to resign his membership of the legislature if he is appointed to that office He is appointed by the President and his term of office is five years Unlike his American counter part who is an elected representative the Governor is appointed by the President on the recommendation of the Prime Minister

The Governor of a State is required to exercise some of his functions according to his discretion (Article 163) The Constitution however does not specify the discretionary field of the Governor but it does contemplate the special circumstances in which the head of the State will receive instructions from the President which he must follow whatever the advice of his ministers may be The Governor may be guided by the President in the choice of the Chief Minister or the summoning of legislature and again when the President suspends the constitution of a State he exercises his powers in the State as the representative of the President Subject to these qualifications the relations between the head of the State and Council of Ministers resemble those between the President and his Council of Ministers All the powers which he exercises are on the advice of the Council of Ministers

VI

The principle of Separation of Judiciary from the Executive enjoined in Article 50 of the Constitution has been given practical effect in the institutions of the Supreme Court and the State High Courts It is true that the appointing authority in either case is the President of the Union But the source of their recruitment and the traditions of their upbringing ensure that the judges can be trusted to decide questions between citizens and State in an impartial manner The role of judiciary in any civilized society is extremely important and more so in countries which are governed by written constitutions It is the judges who have to determine whether there has been any infraction or transgression of the law by the Executive In a federal constitution they have further to determine whether the law enacted by the legislature is in conformity with the constitution In the United States of America where the amendment of the Constitution is by no means an easy process judges of the Supreme Court have even assumed the role of legislators by declaring valid such laws as were necessitated by the great social and economic changes It is courts which have determined when called upon to do so whether a particular law is within the competence of a State or a Union legislature and in this sphere the judges have to act as arbitrators between the rival interests of the nation as a whole and the different States composing the Union

The Supreme Court in India has the jurisdiction to determine any disputes between Government of India and one or more States or between the Government of India and any State or States on one side and one or more other States on the other or between two or more States insofar as such disputes involve questions about the existence of a legal right This is the original jurisdiction of the Supreme Court In addition the Supreme Court also acts as a unifying factor by hearing civil and criminal appeals from the State High

juggler charmed these snakes with his lullaby songs and removed their fangs and stings The concept of reversion of paramountcy to each prince was the most dangerous doctrine ever advanced in politics The old imperialist John Bull wanted to leave India as a land of warring over lords each at the throat of the other each striving to squeeze in and squeeze out each looking back to the good old *John Bull It was a fiendish delight with which John Bull argued that on the lapse of the British* paramountcy the old sovereignty of the ancient princes would revive like a sphynx out of its own ashes and that the old sovereignty of the princes would revert to them after the withdrawal of the British Rule The British Imperialism wanted to see us in a state of turmoil and confusion from which we had been rescued in the 17th and 18th century by the Britishers themselves Et tu Brute ! This is the most unkindest cut of all It was an amazing piece of political chicanery But the Sardar s same old iron hand in velvet gloves came into play and tackled the 565 bundles of mischief and purged those States with a sweet amiableness

SOCIALIST REVOLUTION WITHOUT TEARS

While in the international sphere we have adopted the Panchshila the domestic scene has been revitalised by the most momentous declaration in the Avadi Congress in 1955 that internally India s goal is socialism It will be a doctrine of equality reached through non violence and has been achieved through a revolution without tears The pace may be tardy to start with but the goal has been set and we have to march towards this goal according to the temper of the times The dissolution of the mighty wealth and pelf will come about with the will and consent of the wealthy There will be no need to make them disgorge their ill gotten riches through blood shed but they will part with it unwittingly and smilingly The socialism of a red variety as a doctrine culminated in the West in blood shed and ultimately in the implanting of a totalitarian dictatorship in U S S R and the socialism of a pink variety in China and Yugosalavia through a civil war and a milder form of violence But in India the birth of socialism will be like the rising aruna the morning sun after the pitch dark of a moonless night This sun rise will be neither red nor pink but will be the harbinger of golden shafts of light to dispel darnkess to rouse the sleepy to enliven the air to refresh the atmos phere to warm up the earth to infuse life into soil to sprout the plant life and to bring joy all round The process may be slow but it will be steady and sure

REVOLUTION IN SPIRIT

This slow process has been set on foot by our great Seer and Savant Vinoba Bhave the solitary disciple of our Master His technique of a peaceful revolution is an inspiration from Gandhi ji The unseen hand of the Master is there Vinoba Bhave has ushered in a *spiritual democracy* and a *spiritual revolution* The plane on which he works is neither parliament nor politics nor the familiar field of economic struggles and class wars His field of work is the domain of a Savant and a Seer while the Political and *Parliam ntary Democracy* is being worked out by the Congress under Nehru The Bhoodan Sampatti Dan Shramdan are household words to conjure up a slow and silent revolution that is work ing through the minds of the people onwards towards the goal of bloodless socialism

PITFALLS

(1) Communalism and provincialism

While the Democracy and Revolution in India are going ahead apace we need not lose sight of the pitfalls and dangers that may come in our way These dangers are inherent in the very system itself and will therefore have to be guarded against The greatest danger proceeds from communalism,

sectarianism linguism and provincialism These are all the inverted names of the same evil and are born out of a narrow parochial outlook It is nursed by a twisted thinking shallow vision escapist refuge in the past or jerky leap into the future divorced from the reality of the present creation of close and selfish preserves and a blind appeal to a blind faith Such an approach to life comes to one who builds a narrow wall around himself out of some real or apprehended danger It cannot come to one who has an eagle s broad view of things and who flies in freedom away from the narrow confines of a prisoner s mind The danger arises out of Hindu Sikh gulf in the Punjab the *Gujrat Maratha* gulf in the West the lingual gulf in the South and the age old Bengal Behari gulf in the East The States Reorganisation Commission has sought to bridge these gulfs and evolve a nationalistic distribution of the States But the recommendations of the Commission have created more problems than solved them It was the suggestion of a zonal system from the Prime Minister that has poured soothing oil on the troubled waters The concept of five zones of India is a master stroke that will go down in the history as a great unifying force While giving full scope to the local elements for self expression the over all supervision of zonal Advisory Councils will soothe the parochial feelings and will solve the regional and zonal problems from an overall nationalistic point of view The fissiparous and centrifugal tendencies engendered by the localised feuds and accentuated by a fear of the recommendations of the States Reorganisation Commission will now be resolved into mighty centripetal and nation building force We are however yet not out of the wood and we have to fight this parochialism

The next danger comes from religion or rather to put it more correctly from a pseudo religiousity India has been the home of religions and has worked for a cohesive tolerant religious life The sine qua non of India s culture has been to absorb the currents of faiths from times immemorial so as to swell them into a mighty ocean of faith The background of India s culture is that all faiths are one leading to the same goal like streams leading to the common ocean India s Seers and Savants from time to time have preached the same gospel through the ages The essence of India s philosophy has been worked out on the ethical principle of live and let live The prophets of various religions have been adopted into the Pantheon of Hindu Mythology Christianity was the earliest alien Faith to land in India and to be adopted as a native of the soil The legend of the arrival of Christ s Disciple St Thomas in the South 1900 years ago shows how within a century of Jesus Christ s crucifixion Syrian Christians lived in amity with the Hindus Thus true Christianity was embraced as one of the many faiths in the Hindu Pantheon and has flourished here as an Indian faith for 19 centuries Islam came and lived side by side and its fusion evolved into the Bhakti Cult in the Middle Ages and the gospel of Kabir Farid, Mian Mir and Chisty and took the shape of Din e Ellahi under Akbar This cult travelled abroad even into Persia and Afghanistan where it reappeared in the form of Sufism preached by a poet like Saddi and religious reformers like Bahaulla The Muslim current in the Indian philosophy had thus a timulating *and evolutionary effect in the creation of an Indian mind The contribution* of Muslim saints and prophets has gone a long way towards spreading eclecticism in India The Naqshbunds Qadianis Ismailis and others are the outcome of this impact of a liberal philosophy

Sikhism followed as a doctrine of common brotherhood although it took a militant shape against the then ruling dynasty but in its gospel Sikhism was the high light of Vedant Bhakti and liberalism The sayings of Muslim saints like Kabir and Farid form an integral part of the Sikh scripture Guru Granth Sahib

The same principle of religious tolerance has been incorporated into our Constitution which guarantees the freedom of speech and religion and the propagation of faith This incorporation of the very essense of our culture into our Constitution is the supreme achievement of our democracy But it

is out of this very tolerance and out of this very spirit of indulgence that the dangers arise The British Imperialists used religion as the thin end of a wedge to divide an Indian from an Indian in order to promote his well known policy of *divide et impera* Religion as a cohesive force was the height of our glory But the same religion practised as a pseudo doctrine of narrow thinking, came to be the depth of our debasement and fall The British Imperialists took advantage of our tolerance and ethical life The narrow communalists either out of selfish motives with an axe to grind or on being egged on by some insidious elements may excite religious passions and fanatic fury to serve their own ends to serve the policy of a third power In the midst of the power politics in the world today, it cannot be lost sight of that religion is likely to be pressed into service as a lever to tilt the balance of power in the world Thus while the communist world treats religion as an article of an individual and personal faith rather than as an organised entity the capitalist countries may bank on it as a handy medium to split up the population of a country vertically rather than horizontally The communists divide mankind into horizontal layers of classes one above the other on an economic basis, while the capitalist ideology cuts them up into vertical divisions according to the religious faith or political affiliation Our democracy in India will have to keep a vigil against the intrusions of either of this dividing dogma Communism does not decry religion as a personal faith but it has no place for religion as an entity playing a part in the economic and political life of a country On the other hand capitalism today basks in the warmth of religion When a religion descends down to the level of quarrels with a political system or an economic doctrine it is departure from its lofty idealism of faith and resurrection We have therefore to see that while religion flourishes as a doctrine of tolerance it does not deteriorate into a political faction either for internal disruption or as a mouth piece of a foreign system This danger calls for vigilance

(ii) Profiteer and Capitalist

The second danger comes from another group of people having a different outlook in life These are our industrialists and commercial classes These people have been the spoilt children of British bureacracy They were ladled out big monopolies concessions licences by the ruling class during the wars or political emergencies They made sordid money through still more sordid means irrespective of the Law or moral duty or ethical principles They will naturally bank on the so called *laissez faire* a free hand in a free for all bout known as free trade The doctrine of free trade has been adumbrated for the last 200 years beginning with John Staurt Mill and ending up with Churchill This conservative doctrine of *laissez faire* has been held out to be a necessary concomitant of democracy Political democracy and *laissez faire* are unholy pals The parliamentarian in the political democracy and the industrialist in the sphere of *laissez faire* have throughout history joined hands to confine the power and the wealth to the upper middle classes at the expense of the poor down trodden masses The parliamentarians work the political democracy from above in the political and administrative field to the advantage of the industrialists who believe in free trade This combination spells ruin for the common man It was tried in the 19th century in England and was found wanting This should not be allowed to flourish in India The grabbing of seats through party caucus the procuring of party lables the huge expenses on elections and the election agencies run on money The comparatively affluent commercialists and industrialists can afford to indulge in this political campaign of election Thereby although they may be elected on an adult suffrage they actually belong to the rich classes, and cannot feel the sufferings of the masses

(iii) Civil Servant Droit Administratif

The next danger proceeds from the administrator and the civil servant He has been a very convenient tool in the hands of the British and his traditions have made him easily adaptable

shrewd and time serving opportunist The civil servant has compartments in his mind and he enshrines different things in those compartments He has tremendous power in moulding policy in running the administration and in the dispensation of loaves and fishes He is assiduous and painstaking and cherishes to work in a rut There are grooves chiselled in his mind as a result of his working in a rut He has the energy of a bull who is to be yoked to break the soil and to pull the weight Left to himself he is a danger unto himself Power in his hand can be a source of both making and unmaking He is therefore dangerous and has to be controlled The civil servant is a zealous guardian of his rights and has the capacity to enlarge and inflate them In a totalitarian State, a civil servant can be made or unmade at the wish of his immediate boss But in a democratic constitution under which his rights are guaranteed or are protected by elaborate procedural safeguards the need for wary supervision is all the greater In a democracy the only brake on the exuberance of a civil servant is the vigilance of a parliamentary system of Government through Ministers The civil servant has ordinarily no direct contact with the masses and is thus liable to lose initiative through working in a rut or through sheer inertia The Minister working through the legislature is the link between the masses and the civil servants If the control of the Minister gets slack the civil servant has the knack to raise his head and grab more power The Parliament as the guardian of the civil liberty of the people owes a duty to the people to see that their civil liberties are maintained Unfortunately the legislatures have little or no time for details which are often left to the civil servants and the bureaucracy to be worked out It is this sphere in which the danger lies It is usual for Parliament to leave matters of detail to be worked out in the form of rules directions and notifications to be issued in implementation of the decisions taken by Parliament in the various enactments But in doing so Parliament in a way delegates its authority to a class of persons who may have no direct touch with popular feelings or with the pulse of the masse This so called delegated legislation has in itself become a huge unmanageable Code which is either pigeon holed hidden way in secret or semi secret circulars or is all *Greek* to the layman This rule making authority or delegated legislation, often known as Droit Administratif is peculiar to all parliamentary democracies and is a necessary evil This power of legislation is an *indirect exercise of the will of the people, although it is divorced from a direct touch with the mass* appeal The Droit Administratif or the administrative law as it is called is often a danger to be guarded against in a democracy because it has parallel usurpation of power in all modern democracies

But whatever it may be a vigilant democracy can look after itself and avoid the pitfalls that it may encounter A living vital nation will always surmount difficulties As a young nation we have to go forward with the objective of the Avadi Resolution in our domestic relations and in a spirit of Panchshila in our foreign policy



IN the march of the country towards progress and prosperity in the years after independence, multipurpose river valley projects have played a major part Through these projects the country s resources in food and industrial wealth have been substantially increased The power potential that was lying dormant in the water and land resources of the country has been brought to a new fruition

India is a land of contrasts in many ways and this is typically exemplified in the plenty and famine that visit the land due to the vagaries of rainfall Floods cause havoc to property and life when uncontrolled rivers unleash themselves on to fertile crop land and leave a scene of devastation Crops wither due to lack of rain and the cultivator gets no reward for all his toil of many months It is only the river valley projects that have brought security into the life of the cultivators by stabilizing the availability of water At the same time the wheels of industry are turned by additional energy generated in hydro electric power houses

In particular the benefits have gone more to rural India—the villages which are the real emblem of the country s life, throb with new activity when they have water brought to their homes and fields and when the darkness of those villages is dispelled by electric power carried right into their heart on those gleaming transmission lines

India has been known as a poor country for the last 300 years because of lack of technological progress in contrast to Western countries where man has harnessed the elements with his advanced scientific know how The increasing population of India in contrast has got doubly impoverished Vast numbers have been added to the population and no corresponding addition has been made in the country s productive wealth The economy of the country has therefore remained dependent on other countries who had the advantage of political domination over India

The living standards have been persistently low Political and communal bickerings have resulted continuously due to lack of minimum

necessities of life for many sections of the people There can be no agreeable manner of dividing poverty and India has suffered from this dilemma

It has been recognised for a long time that the only way to abolish poverty and low standards of living in the country is through increased production This is clearly impossible till more land is usefully brought under the plough and till more industries are established in the country in order to absorb the great masses of unemployed and underemployed people Unlike the West Power in this country has been derived from human or animal labour This has made it quite impossible for India to compete with any of the nations who are making use of modern machinery run by thermal or electric power

There is no doubt about the immense resources of natural wealth which exist in India in its land water and man power The successful exploitation of resources alone can end the poverty of the masses of India and raise their standards of living Multipurpose river valley projects have provided the answer to this problem of poverty Wherever such projects have been initiated and completed the country has alread turned a new leaf

FINANCIAL IMPLICATIONS POST INDEPENDENCE

It is interesting to note that the total investment over river valley projects for the hundred years preceding independence was of the order of 100 crores As against this in the period of the First Five Year Plan we have spent in the neighbourhood of 100 crores per year This shows the relative tempo of work in the post independence period as compared with a century of foreign rule in India

The financial yardstick in the past was that every project must be capable of paying the interest charges after the tenth year of its operation Money was usually raised abroad for the project and foreign investors wanted to be quite sure that they did not run into a loss of any kind Hence they were anxious to take up only those projects in which quick and easy profits could be made It may be noted that although their outlook was cautious and conservative they succeeded in building a large number of projects which earned sufficient money, not only to bear all the interest charges after the tenth year of construction but also to repay many times over the entire amount of investment on those projects

Whereas it is desirable that multipurpose projects should be capable of being self supporting it is to be noted that the yard tick of productivity in terms of direct revenue cannot be regarded as a true yard stick One has to take into account not only the direct returns from the project but also the indirect sources of income and revenue which go o enrich not only the State but also the people After all with greater purchasing power the people spend more in their day to day life and the State realises its taxes in forms other than direct water rates and power rates

The procedure of repayment of capital in the more progressive countries is very much more favourable to enable the undertaking of the project No interest is charged at all and the project is considered feasible if it can pay back all its capital cost in 40 instalments

It i now a well established dictum that if a multi purpose river valley project is sound and has been properly constructed and operated there is no chance of its not being able to pay in the long run The question of finance therefore resolves itself into finding the money required initially for the investment for the building of a project

RECENT HISTORY OF IRRIGATION AND POWER PROJECTS

Ever since the middle of the 19th century the British rulers in India came to the conclusion that the arid lands in certain regions could be converted into smiling gardens if only the water for the crops was

INDIA

MAJOR IRRIGATION & POWER PROJECTS

KASHMIR

TIBET

WEST PAKISTAN

NEPAL

BHUTAN

RAJASTHAN

UTTAR PRADESH

E PAKISTAN

CUTCH

SAURASHTRA

MADHYA BHARAT

VINDHYA PRADESH

BHOPAL

MADHYA PRADESH

BURMA

ORISSA

ARABIAN SEA

BAY OF BENGAL

HYDERABAD

MYSORE

CEYLON

-LEGEND-

IRRIGATION PROJECTS I ▲

POWER PROJECTS P ●

IRRIGATION & POWER I.P. ⊕ PROJECTS



FIRST FIVE YEAR PLAN

JAN 1953

supplied in season in requisite quantity For this purpose, there could be no better solution than constructing a system of canals to carry water from the rivers flowing in the high regions to the lands upto which the command could be secured This sort of irrigation had been practised earlier in the days of the Moghul emperors and its success was a fore gone conclusion

In accordance with this policy the British rulers assisted by British Engineers started with the development on the Ganges river by the construction of the Upper Ganges Canal in the middle of the 19th century This was followed by the construction in the Punjab of the Upper Bari Doab Canal through which the British rulers wanted to settle the unruly Sikh army after the Sikh War The sturdy people who had previously been engaged in internecine war fare and other lawless activities, bent their energies to the arduous labour of clearing the waste land levelling and tilling it for good crops and then watering it with the help of the Irrigation system

OUR MAJOR MULTI PURPOSE PROJECTS

Rivers have influenced the life of the people of India ever since history began They have sung their praises in religion and folk lore The Ganga has been regarded as the Holy Mother—the giver of plenty and the curer of all ills Towns have been founded on the banks of rivers and their tributaries since the hoary past The best traditions of the Hindu religion prescribe a morning bath in the nearest stream

Yet rivers have not been a source of unmixed good They have exhibited wrath and devastation in their angry and swollen moods They have wiped away towns and civilization They have quite often changed their course , and for a long time man has stood helpless beside the mighty forces which brought about such changes It is a feature of recent history that man has attempted to harness the rivers to supply water in all seasons for his agricultural requirements In India the first canals date back to the second century on the Cauvery and to the 14th century on the Yamuna A further instance of canals on a larger scale relates to the Mogul Emperors who were fond of gardens and fountains in their palaces The capital cities of Delhi and Lahore still have remnants of these 16th to 18th century projects which though small were picturesque and added to royal pleasures

It was left to the British rulers to lay the foundations of modern irrigation in India As in the case of railways the British pioneered the construction of diversion weirs and canals in many parts of India The economic and political gain of canal projects were quick and dramatic And lands in which dry farming was either impossible or altogether uncertain responded magically to the supply of water from irrigation channels Unprecedented harvests were reaped by the early settlers on the newly colonized lands

In the North Western region covered by the Ganga Jamuna and Ravi rivers the western Jumna Upper Ganges and Upper Bari Doab canals were constructed within the period of consolidation of the British rule The response from the hitherto turbulent communities of Jats and Sikhs was a contrast to their previous hostilities They all bent their energies to the assiduous tilling of land and raising bumper harvests of wheat cotton and sugarcane The Canal colonies of Lyallpur Sargodha and Montgomery became dotted with the richest fruit gardens The colonization of crown waste lands brought the Government huge annual sums from land sales In addition the process proved a powerful weapon in the hands of the British rulers to bestow patronage and win the allegiance of large sections of people who became the camp followers of the British

The political significance of the public works programme was deep and real The contrast between the arid wastes and the smiling crop bearing lands was a compelling invitation to people to sing the

praises of the foreign rulers—who gained the title of Mai bap (father and mother) The British rulers capitalized on this phase of development in many ways Apart from ensuring the supply of raw products like wheat and cotton for their own island country they grew from power to power in the Western world enriching their homeland with the spoils of the newly won and skilfully consolidated Indian Empire which became the first jewel in the Crown of the British sovereigns

In North Western India Irrigation Projects assumed the unprecedented role of controlling the entire economy of the region New records of income were obtained in the First World War when this area served as the granary of the British Empire for supplies of wheat and cotton In addition to obtaining colossal supplies of these products the British converted this area into a big recruiting ground for the Indian Army which began to be used in increasing numbers in the Imperial wars which the British waged to gain new colonies and to retain their sovereignty on the lands and peoples subjugated by their politicians in the 18th and 19th centuries in glorious exploits of expanding trade and conquest

While irrigation projects became popular with the British administrator and politician they were generally averse and even opposed to the harnessing of water for power generation This was in consonance with the British idea of confining the growth and progress of India within the agricultural field If India was allowed to become industrially minded it would soon compete with Liverpool Manchester and Sheffield and people would cease to import the vast quantities of consumer goods which were manufactured by Britain and poured into India The process of exploitation would in this way undergo severe curtailment, and India would cease to be the prize possession on which so many British politicians tradesmen and service careerists were thriving

Going further into this underlying basis of British policy one finds them fostering the projects benefit ting the predominantly Muslim areas in the period 1921 to 1947 The Haveli and the Thal projects in the joint Punjab were given precedence over the Bhakra Dam Project although there was a greater need for this latter project to ward off the famines in the Hissar and Rajasthan arid areas To suit the policy of the rulers and to drown the clamour of protests from the East Punjab people for repeated postponements constitutional and political difficulties with the Raja of Bilaspur and the deliberately created Sindh Punjab dispute over Indus water distribution were used as effective hurdles to put off the starting of the Bhakra Project from year to year for over two decades

EFFECT OF PARTITION

In 1947 when the country was partitioned on the eve of Independence the food problem for the Indian Union assumed a very much worsened form In undivided India 400 000 cs of water were carried by the canals Out of this half is carried by the canals which are now in Pakistan Out of the 24 million acres of land which were irrigated by state controlled canals in undivided India more than half now lie in Pakistan For 18 per cent of the population which is now in Pakistan they have 23 per cent of the total area 32 per cent of the rice 35 percent of the wheat and 25 percent of all the foodgrains of undivided India There is a shortage of 1 million tons of foodgrains annually which was previously obtained by India from the areas which are now in Pakistan

The above situation made it all the more urgent that India should go ahead with some of the projects which were shelved in the British period due to political expediency Foremost among such projects was the Bhakra Dam Project of which a detailed description is given subsequently

The physiographic features divide India into distinct parts Out of this the Indo Gangetic plain constitutes one of the most fertile tracts in the country Although cultivation has been practised in this region

from times immemorial there is little sign of exhaustion The rivers are snow fed and as such they have a minimum supply even in the winter months In the rainy season they rise to flood discharges which are 50 to 100 times their minimum discharges A huge amount of detritus load is also carried by these rivers which replenishes the fertile top soil

The rainfall in India is notorious for its unequal distribution during the year Also it has a big variation from year to year in respect of duration incidence and quantity India has an average rainfall of 50 although the desert areas in the North West have only 5 annual rainfall The average in Assam is about 100 although the highest figure in one location is 400 In many places it is quite common to have rainfall in a year to be less than 1/2 the normal Famines have been experienced when only 1/4 of the normal rainfall has occurred in a critical period during the crop rotation

The above characteristics bring out the great need for artificial irrigation for stabilising agricultural operations which are otherwise at the mercy of nature The need for conservation of supplies during flood months for utilisation later in the area is paramount Hardly is there any other country in the world where an even distribution of the available water resources would lead to a much additional benefit as it will produce in India

An appraisal of the water resources of the country obtained by correlating the river flow in each basin with its rainfall and temperature indicates that the total annual inflow for the Indian Union is nearly 1350 million acre feet The utilisation of this resource for purposes of irrigation is less than 6 per cent amounting to 75 million acre feet The rest of the water flows waste to the sea

THE NEED FOR STORAGE PROJECTS

In order to conserve to the maximum utilisable extent the surplus waters that continuously flow down to the sea, it is necessary to construct huge storage projects on several of the river systems in India *It has been estimated that about 1/3 of the total of 1350 million acre feet of water (say 450 million acre feet)* can be put to beneficial use As the existing utilisation is 76 million acre feet it will appear that we can increase the utilisation six fold There is however, an important limitation of the extent to which monsoon flows can be stored The economic feasibility of storage projects is an important consideration because of the very high cost of such projects The saving feature is that besides irrigation large block of hydro electric power can be produced from the storage created and a good deal of protection can also be secured against flood damage

There are, however obvious limitations which stand in the way of utilisation of the total flow in the rivers First it is possible to divert or store only a small portion of the flow as compared with the maximum flow Secondly as the supply varies from year to year the work can obviously be constructed only for such fraction as is available on a firm basis during most of the year Again it becomes necessary that certain quantities of water are allowed to flow in the rivers for purposes of hydro electric development navigation and water supply to towns and villages Even so the potential of supplies that can still be utilized is enough to provide a progressive programme of development that may well last over 30 to 40 years

POWER RESOURCES AND EXISTING DEVELOPMENT

Whereas the exhaustable sources of power based on coal mineral oil and natural gas are rather small for the size of the Indian Union the resources of hydro electric power are enormous So far no authentic survey of these resource has been made In 1921 a minimum continuous water power potential of 3 5 million k w only was considered feasible This has turned out to be a gross under estimate There

is no doubt tha the total hydro power potential of India exceeds 40 million k w Total workable resources of coal are estimated at 20 000 million tons of which only 4500 million tons are good quality coal As to oil Assam produces only 5 per cent of the total requirements of the country

The development of electric power presents a much poorer picture as compared to the development of Irrigation The first hydro station in India was erected in Mysore at Shivasamudram in 1902 Soon after the Tata Hydro electric station followed in Bombay area Upto 1920 the progress was rather slow but subsequently the power generation industry saw rapid and continuous expansion In the period 1939 to 1950 the total power generating capacity has nearly doubled the annual figures show a rise from about 1 million k w to 1 71 million k w The increase in the total quantity of electricity has been from about 2500 million k w h to 5100 million k w h At the beginning of the First Five Year Plan only 32% of the electric generating capacity was in hydro electric stations the rest being in coal and oil burning stations

The picture of power generation presents a great contrast to every modern country on account of the backwardness of India Most of the power so far produced has been in major cities Bombay and Calcutta alone consuming about 40 per cent of the total electricity generated in India The average per capita consumption of electricity is only 14 k w h per year as compared with 1100 k w h in the United Kingdom 2207 k w h in United States of America and 3905 k w h in Canada Again there is a great unbalance between rural and urban areas in the development of power Six large towns with 3 per cent of the country s population get the benefit of 56% of the total public utility installations

THE NEED FOR FUTURE DEVELOPMENT

With the available land and water resources India can build up great strength only if agriculture is put on a more stable basis The vagaries of rainfall jeopardise the living of 70 to 80 percent of India s people due to uncertain condition which keep them guessing upto the last whether they will get due reward for their hard labour

It has been estimated that in areas of low and uncertain rainfall the yield per acre can be increased 2 to 3 times if the lands were irrigated Again large areas of cultivable lands which are at present barren and lying waste can b cultivated and used profitably if irrigation facilities were provided Due to the variation in climatic conditions topography and quality of soil the nature and quantity of irrigation required differ considerably There are large tract in the States of Rajasthan Punjab and Western U P where irrigation is a necessity for cultivation all the year round The entire agricultural pattern of large tracts of country can be changed if irrigation facilities are provided Increased production from land and increased employment for the cultivator can be secured affecting the lives of millions of people

RACE BETWEEN DEVELOPMENT AND GROWTH OF POPULATION

The population of India has increased by 120 millions in the first 50 years of this century rising from 235 5 millions in 1901 to 356 9 millions in 1951 The increase in agricultural development has however been comparatively small From the year 1906 to the year 1935 there was very little increase Against the population increase of about 1% per year the increase in cultivated area was about 1/5% The increase in area irrigated whether by government works or private enterprise was however substantial the rise being nearly 2% per year—from 29 6 (average) million acres in 1900 to 58 1 (average) million acres in 1945 The increase in irrigated area no doubt gave more assured crops and increased out turn per acre but the rate of population growth was far in excess of the rate of increase of production This brings out the unavoidable necessity of catching up with the increasing food requirements of the country if famine and want and malnutrition are to be banished

FOOD POSITION AND POLICY

The abnormal conditions created during the Second World War produced unprecedented stress and strain over many regions of the country with disastrous effects The food crisis in Bengal brought to the fore front the need for building up reserves which would insure the country against failure of crops or *abnormal price fluctuations which dislocate the economy of the country* Heavy *imports of foodgrains had* to be resorted to between the years 1946 to 1952—the average net absorption amounting to as much as 3 million tons annually B tween 1948 and 1952 the country had to spend over Rs 750 crores in the cost of imported grains This imposed a heavy strain on government finances and the much needed expenditure on development Although a number of stringent measures were taken for the control of distribution and sale of food no satisfactory solution could be found without building adequate reserves of food through increased production in the country supplemented by expensive importation of food grains This factor was principally responsible for diverting attention to the overall importance of irrigation as the only safe remedy for making the country self sufficient in food Considering the inevitable rate of rise in population *and the necessity of maintaining standards comfortably above mere subsistence levels the guaranteed avail* ability of 7 to 8 million tons of surplus food grains becomes the first obligation of the Government to the people of India

As a result of the above considerations it has been concluded by the Planning Commission that there should be a two fold endeavour to solve the vital problem of food First the water resources of the country should be utilized to the fullest extent and second the standard of agricultural practice should be concurrently raised by the application of scientific research to agriculture Also public investment must give to the primary producer the water the power the seeds and the manures that he needs—all these at the rates which he can economically afford with a reasonable incentive for achievement

NEED FOR POWER

One has only to move a few miles out of a big city into the countryside to feel the contrast which electric power creates between electrified towns and unelectrified villages The concentration of amenities and means of entertainment and diversion is centered round cheap electric power Not only industrial undertakings but all institutions concerned with the unfolding of a man s personality have become great through the use of electric power in a diversity of application Cheap power for pumping water for irrigation and for agriculture and cottage and small scale industries can transform the life in rural areas to such an extent that the influx of population into cities can be arrested In India there is still time for electric power to reach and expand into the countryside b fore the village workers decide to quit their houses and farms and transfer themselves to slum conditions in towns much further

GROWTH OF ELECTRIC LOAD

Since 1940 the demand for power has far exceeded generation whether from thermal or hydro electric sources The normal growth of load augmented by the impetus of the Second World War crisis made it necessary that all available spare capacity of the country s power stations be harnessed In the same period it was not possible to obtain additional plant or replacement New connections were severely restricted and staggering of load was arranged through dispersal of holidays and working hours In this way the minimum demands of industry were met but the picture was one of extreme shortage of supply as compared with the demand As such the industrial development of the country and the consequent economic development were greatly hindered The total installed capacity was estimated by the Planning Commission at 1 million k w of public utility steam plant It can be stated that out of this 100 000 k w capacity plant is already out of date

The load created by tube well pumping for lift irrigation schemes in which Uttar Pradesh played a pioneer s role has created a potential market of a big magnitude The Ganga Canal grid generating 61 million k w h wa utilized to over ⅓ of its total capacity for operating 2 200 tubewells owned by the State Irrigation Department The open pumping in Madras and Mysore States from wells and tanks consumes over 11% of the energy sold by public utility in that region

Due to the shortage of plant capacity some 20 000 applications were on the waiting list in 1952 in Madras and Mysore States In the Indian Union irrigation and agricultural dewatering consumed 64 million k w h in 1939 In the succeeding 10 years this figure was more than doubled and the recorded consumption in the year 1949 touched the peak of 150 million k w h

So far as the Punjab is concerned the Uhl River scheme which generated a maximum of 28,000 k w in the peak reached during the Second World War has been the only source of power supply in Northern India before and after partition Supplies of electric power to West Punjab were continued even after the partition in order to accommodate the demand from Pakistan who had practically no Hydro electric power at the time of partition As a result the State of Punjab in the India Union remained very short of power It was in the post partition period that full attention was concentrated on the Bhakra Nangal Project and the Ganguwal Powerhouse was commissioned in January 1955 to supplement the power generation

The quantum of power needed in the context of present requirements beats all records In fact it is fallacious to use the yard stick of the distant or even near past in assessing the demand that will come into existence in the very near future The climate of India is definitely changing from its agricultural charac teristic to an industrial trend In view of this an ever increasing demand from now on can well be regarded as a certainty

MULTIPURPOSE PROJECTS—HIGHLIGHTS OF NATIONAL POLICY

The integrated development of the country s water resources for irrigation and power make it necessary that there should be a national policy in regard to the measures to be taken for early achievement of the food and power targets

The findings of the Irrigation Commission of 1901 1903 are noteworthy They laid emphasis only on those projects which were productive No regard was to be paid to the urgency of protection for the particular locality as the Railway freights were cheap and the produce of one region could be economically carried to the region where want was felt Outriding preference was therefore given by them to promising projects for which funds were required to be made available on the highest prio rity unless such funds were either already allocated to work in progress or were needed for strategic works This principle gave full recognition to the all India nature of the solution The second argu ment in favour of a National Policy embracing all problems of planning design and construction not on a statewise basis but by pooling the resources of the entire country in personnel material and machinery is even more incontrovertible The projects of the future are expected to be more complicated than those executed in the past New techniques have to be brought into use for further harnessing the resources of nature For such difficult ventures the effort that can be put forward by any one State may be inadequate for achieving the best solutions

The third reason for not confining multipurpose projects to State boundaries is based on the fact that river valleys were not made by nature to conform to the artificial boundaries fixed for historical or admini trative reasons Quite frequently the water that has to be stored by the construction of high dams in one State is used in that State and the neighbouring areas It becomes absolutely essential to have joint

investigation in management which can best be organized under the direction of a central authority The last reason for heavy projects planned and executed on national basis derives its force from financial considerations The outlays needed for multipurpose development exceed by far the financial resources of any individual state As the funds have to be made available on a definite basis under guarantees for the various periods the programme can only be operated by a central authority that can secure the necessary co ordination and integration Priorities for machinery materials and foreign exchange also are outriding considerations which would be beyond the powers of any single state

CO ORDINATED PLANNING

The use of water for irrigation, power generation flood control navigation fisheries and recreation thus becomes a complicated problem in which there has to be inter dependence and co-ordination for the allocations directed for each aspect of the project The target of the country in irrigation is the doubling of irrigated area in 15 to 20 years This means that new irrigation facilities are needed for 40 to 45 million acres Similarly the additional power generating capacity of about 7 million k w is needed The combined programme for irrigation and power generation is expected to cost about Rs 2 000 crores inclusive of the work already carried out in the First Five Year Plan To raise the standard of living in the country foodgrains and cheap power are essential requisities They have accordingly to be given a prior most place in the projects of development for the country The foundations of both the First Five Year Plan and the Second Five Year Plan rest on the base work to be furnished by the multipurpose river valley projects which are selected with utmost scrutiny and farsightedness and then implemented with diligence integrity and efficiency The investigation and preparation of plan the construction and the subsequent operation require from 10 to 20 years of continuous work in the case of each major project The people of India have therefore to remain prepared for steadfast work and sustained determination to ensure the economical fruition of each of the major projects which are described further in this article

PROVISION IN THE FIRST FIVE YEAR PLAN

The projects already under construction at the time of the formulation of the First Five Year Plan have taken a substantial amount out of the total provision for multi purpose projects in the First Five Year Plan In 1951 projects to the target value of Rs 765 crores were in hand for irrigation and power The expenditure incurred upto 31st March 1951 amounted to Rs 153 crores The projects included in the above cost are those which were sanctioned in the country by various State Governments after the Second World War The highest priority was given by the Planning Commission to the Projects on which considerable sums of money had already been spent since 1947 As however the need of the country was primarily for additional foodgrains some of the projects were modified in order to get the food benefits in full measure and in the earliest stage The changes and modifications made resulted in the total cost of the projects being reduced to 518 crores Of this amount 266 crores were required to be spent in the first two years of the First Five Year Plan With these large commitments already before the country the First Five Year Plan could not include many of the new projects which were put forward by the various States

So far as power generation was concerned emphasis was withdrawn from it in the First Five Year Plan under the apprehension that development of load for every large generating unit may not be forthcoming thus locking up a huge amount in too early investment As has been experienced later the fear that development of load will not be quick has been belied by actual experience The tide has already turned and multipurpose projects of the Second Five Year Plan are required to lay greater emphasis on power generation than was conceded at the time *of formulation of the First Five Year Plan*

On account of the very nature of the problem detailed technical investigations and careful assessment of the economic aspects of various projects cannot generally be completed in advance of the starting of work on the projects This is to a large extent inevitable, because some of the data emerges only with the progress of work on the project, e g the foundations of high dams In such cases approximate provision only can be made and further data must be collected for periodical review during the course of subsequent progress on the projects This procedure has been found necessary for all the major multipurpose projects started in the country since independence As explained later on, the excess over the original estimates is not to be attributed so much to any lack of efficiency or other defects The expansion in the scope of each project and the detailed information that comes to hand with the progress of the work are the real controlling factors There is a vague idea in the minds of the people that the estimates exceed because the authorities incharge are lax or the original estimates were faulty Actually the true position generally revealed after enquiries has indicated in almost all the cases that the extra costs incurred were generally speaking inevitable The option in such cases is that no authorisation be given and no works started till investigations are reasonably complete This option could not be exercised in the past because of the very short time limits within which the completion of the projects was desired If the country were to plan on a continuous basis, investigations and other exploratory data would be obtained in advance It is a lesson to be learnt from the present multipurpose projects that no time should be lost in putting necessary personnel and funds in position for securing the data and carrying out the initial exploratory work which alone can define the details of works to be included in the project If this course is followed the initial estimates would be much more exact and a lot of needless misunderstanding and controversy would be avoided

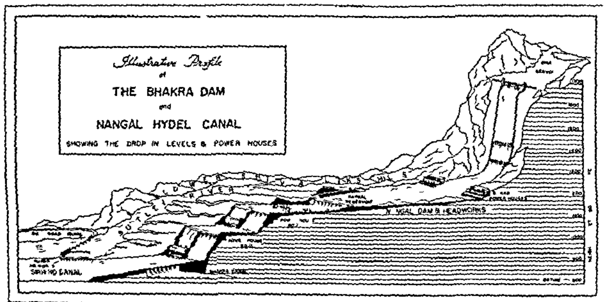
With the conclusion of the Bhakra Dam project Damodar Valley Project and the Hirakud Project the programme of construction of multipurpose projects will have crossed its peak Since the analysis given earlier in this article indicates that India is in need of River Valley projects for the full utilisation of water resources for the next 30 or 40 years it will be a wise policy on the part of the Central and State Governments to lose no time in the initiation of further projects which are on the waiting list

BHAKRA NANGAL PROJECT

With the pouring of the first bucket of concrete at Bhakra Dam on the 17th of November 1955 by the Prime Minister another nail has been struck in the coffin of poverty flood havoc and famine Now onwards the higher the dam rises the farther are these enemies of men driven away For the arid lands of Punjab Pepsu and Rajasthan the monsoon gamble will no longer inflict the drought or the floods Sutlej is enslaved and would henceforth work according to commands The vast blocks of hydro electric power generated will help eradicate unemployment and give an unlimited tempo to the fresh fields of industry The Bhakra Nangal Project represents a remarkable feat of the perseverence and skill of man and in the words of the Prime Minister a gift to the generations to come

The construction of the main Bhakra Dam and appurtenant works involves the placement of over 5 million cubic yards of concrete This will be done by transporting loaded concrete buckets in concrete cars and their final placement with the help of cantilever and revolver cranes moving on trestles

The construction of such a gigantic structure as Bhakra Dam poses unprecedented problems of planning organization coordination and supply A little delay in the supply of any one item required during construction may result in an expensive set back to the entire schedule The planning and detailed designs are of paramount importance in the interest of both efficiency and economy The executive organization is also planned with the minutest scrutiny Jobs such as the establishment of work



Illustrati e Profile showing the Bhakra Nangal Project Only two powerhouses are shown on the Nangal Hydel Canal Potentialities exist, however for a third powerhouse



The Nangal Dam—It consists of 26 bays 30 ft each The bays are fitted with mechanically operated gates

shops and repair and service facilities at various locations the purchase and installation of plant and material required during construction regular and adequate flow of essential construction material and efficient handling of manpower and technical skill have received the most careful planning

BRIEF HISTORY OF THE BHAKRA NANGAL PROJECT

The necessity for providing irrigation facilities to the dry and arid areas of Rohtak and Hissar districts and the adjoining area of the erstwhile Bikaner State now part of Rajasthan has been keenly felt for the last two centuries on account of repeated and devastating famines The tract has an average annual rainfall of only about 12 inches and depth of water below surface of 100 to 200 feet, which precludes cultivation on well irrigation Even this scanty rainfall fails year after year and the tract is subject to continuous severe famine conditions The reports of successive Famine Commission make a sad and pathetic reading It is stated that the famine of 1783 was so severe that the entire population was either destroyed or uprooted and the whole cattle wealth perished

The proposal to construct a storage reservoir on the Sutlej orginated in 1908 Investigations were *taken up by the Punjab Irrigation Department and different proposals were framed in successive projects* between the years 1915 and 1939 42 when a comprehensive project estimate was prepared Detailed investigations were undertaken and consultations were held with eminent geologists and engineering consultants In 1945 Indian engineers were sent to U S A for a study of the design and construction problems of the Bhakra Dam and to have designs and specifications prepared by the International Engineering Co Denver In 1946 preliminary operations were started comprising construction of the Rupar—Nangal Railway Rupar Nangal Road and Road and Railway from Nangal to Bhakra Dam site and building the Nangal Township for housing the construction staff

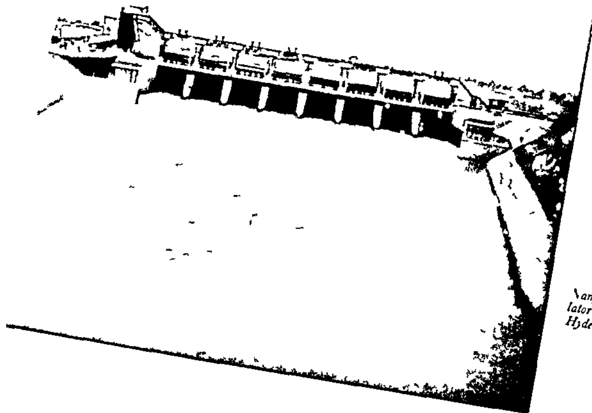
In 1948 the design of the dam was revised and the height of the dam was raised by 100 feet to elevation 1680 This fixed the gross capacity of the reservoir at 7 4 million acre feet out of which net utilizable storage of 5 6 million acre feet would be available The following areas are planned to be benefited from the scheme

Gross Area in lac acres	Restricted perennial	Non perennial	Perennial	Total
Punjab	12 2	5 5	25 6	43 3
PEPSU	6 1	1 2	6 1	13 5
Rajasthan			10 8	10 8
Grand Total	18 3	6 7	42 5	67 6

It may be mentioned that the mean storage available in the reservoir will be 4 6 million acre feet against 6 2 million acre feet required thus resulting in a shortage of 25 % However the area included in the project for irrigation purposes has been kept high to spread the benefit as widely as possible The shortages can be met from additional resources to be derived from adjoining rivers or Tubewells which can be installed for augmenting the perennial supplies, by pumping from the sub soil reservoir when cheaper electric power is available

BHAKRA DAM AND POWER PLANT

The dam will be of the straight gravity type with the normal full reservoir level at 1680 The top of the dam with 30 roadway will be at elevation 1700 The upstream face of the dam will be vertical upto elevation 1350 with an upstream batter of 0 35 to 1 below that The downstream face will be



Nangal Dam—Head reg lator The Nang Hydel Canal takes off here



Donala aqueduct on the Nangal Hydel Canal

provided with a batter of 0 8 to 1 0 The dam will have a series of internal galleries with a total approximate length of 16 000 feet for purposes of inspection drainage, grouting and operation of regulation equipment

The overflow spillway 260 feet wide fitted with a radial gates 50 × 37 5 will be provided in the central section of the dam The spillway with the help of irrigation outlets will be able to negotiate a flood of 2 90 000 cusecs corresponding to a total flood of 400 000 cusecs Two tiers of irrigation outlets with 8 to 10 outlets in each tier will be provided at elevations 1320 and 1420 The river outlets will be capable of passing a discharge of 106 000 cusecs Two tunnels 50 in diameter and about half a mile long each are being used for diverting the river

Two rolled fill cofferdams for enclosing the operation area in the bed of the river have also been constructed The upstream cofferdam is 215 ft high and the other downstream is 132 ft The foundations of the dam in the river bed have been excavated and the concreting of main dam started Lot of subsidiary excavation has also been done such as for plant terraces etc

Two power plants one on the left and the other on the right side downstream of the dam with a provision of 5 and 4 units respectively and each power unit capable of generating 90,000 K W as firm power are proposed Total firm power will be 3 65 000 K W

NANGAL DAM

The Nangal Dam is situated 8 miles downstream of Bhakra and will serve to divert the river supplies into the Nangal Hydel Channel It is a 90 feet high concrete dam consisting of 26 spans of 30 feet each with 7 feet wide piers and two tiers of gates 18 × 11 high in each bay and a concrete breast wall on top It has been designed as a modern hydraulic structure on permeable foundations to stand a head of 53 feet It has an arterial road bridge combined with it It can pass a maximum flood of 350 000 cusecs Besides diverting the water into the Nangal Canal it will form a small balancing reservoir to smoothen the diurnal fluctuations in outflow from Bhakra Power Houses and to cater for variable discharges required for the Nangal Power Houses

Combined with the Nangal Dam is the Nangal Canal Regulator consisting of 8 spans of 24 feet each with 6 0 piers and requisite gates and gearing A shingle excluder consisting of a slab on top of double storeyed tunnels has been provided which leads the shingle laden water downstream of the dam and the clearer water into the canal The first two bays of the dam are covered by the shingle excluder which have 3 gates each

NANGAL HYDEL CHANNEL

The channel takes off from the left bank of river Sutlej above the Nangal Dam It is a lined canal 39 6 miles long designed for a full supply discharge of 12 500 cusecs The normal slope is 1 in 10 000 but where it runs through deep cutting steeper slopes have been provided with a view to reduce excavation and save cost The normal bed width and depth are 80 feet and 20 6 feet respectively

The canal passes through very difficult sub mountainous country specially in the reach from head upto the second Power House a distance of 18 miles It involves deep cuttings in conglomerate shingle and sand and hillocks and heavy filling in the ravines Fifty eight hill torrents of an aggregate maximum estimate fun-off of 248 000 cusecs cross the canal

The canal presents many special features and has entailed considerable labour in working out safe and economical designs



Forebay of the Ganguwal Powerhouse while under construction



1 24 000 kW generating set in Ganguwal Power house on the Nangal Hydel Canal 3 such units have been installed in the Powerhouse

NANGAL POWER HOUSES

Out of the two Power Houses on the Nangal hydel canal the Ganguwal Power House has been working at a capacity for generating 48 000 K W of power since the beginning of this year The other Power House namely Kotla Power House, will start functioning by middle of 1956 and will generate an equal amount of power

RUPAR HEADWORKS

Rupar Headworks has been remodelled to cater for the increased requirement of Sirhind Canal and to feed the new Bist Doab Canal The full supply discharge of the Sirhind Canal has been raised from 9040 cusecs to about 12 500 cusecs With this extension of irrigation new tracts have been served It has also improved the water allowance in existing areas

BHAKRA CANALS

The Bhakra Main Line takes off from the tail of the Nangal Canal at Rupar and is designed for a full supply discharge of 12 457 cusecs From Rupar passing through the enclaves of the State of Pepsu it proceeds almost straight to Tohana situated on the border of Hissar district

The Main Line absorbs the existing Ghaggar and Choa Branches and the Patiala Navigation Channel of the Patiala Branch of the Sirhind Canal This is a convenient arrangement as it releases corresponding capacity of the Sirhind Canal to accommodate the additional supply

In addition to direct distributaries of an aggregate capacity of 1226 cusecs the following branches take off from the Bhakra Main Line Bhakra Main Branch and from the Narwana Branch

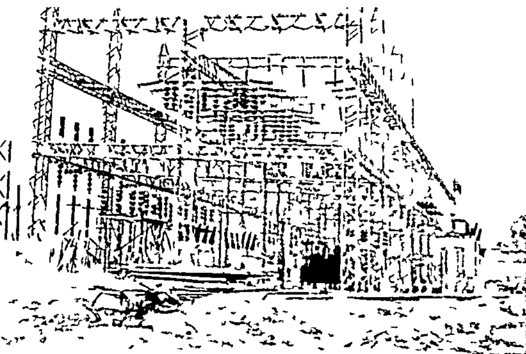
S No	Name of Branch	Authorized full supply discharge in cusecs
1	Narwana Branch	4 459
2	Ghaggar Branch	1 433
3	Choa Branch	314
4	Bhakra Main Branch	5 069
5	Fatehbad Branch	1 707
6	Ratia Branch	671
7	Rori Branch with Ottu Feeder	1 030
8	Karnising Branch	448
9	Sadul Branch	1 244
10	Barwala Sub branch	824

The Sidhwan Branch (1727 cusecs) forms part of the Sirhind Canal system and Bist Doab Canal (1801 cusecs) takes off direct from the river

The Bhakra Main Line Main Branch Narwana Karnising and Sadul Branches are all lined channels the rest are unlined

The Narwana Branch irrigates the Samrala Rajpura tract (No 6) Patiala tract (No 7) Kaithal Pehowa tract (No 8) Pepsu area between Ghaggar and Dhamtan distributary (tract No 9), Barwala extensions (tract No 10 and 11) and the existing area of the Sirsa Branch from Habri head to the head of Gorakhpur distributary The Sirsa Branch from head to R D 88 000 has been renamed as Narwana link

The Fatehbad and the Bhakra Main Branches take off from Sirhind Canal above Manpur Regulator and irrigate the area of Ludhiana district lying between the outer irrigation boundary of Sirhind Canal and the high Bank of river Sutlej and the Grey Canal areas



Switch yard of the Ganguwal Powerhouse on the Nangal Hydel Canal



River Sutlej flowing through the Bhakra Gorge before it was tamed and made to flow through the two 50 ft dia diversion tunnels

BIST DOAB CANAL

This canal takes off from the right side of Rupar Head works and it irrigates a gross area of 6 34 lac acres in Hoshiarpur and Jullundur districts of Punjab and Kapurthala district of Pepsu The main canal is 20 miles long with a head discharge of 1801 cusecs and is lined for about 8000 feet only It has two branches viz Jullundur Branch 45 miles (of which half is lined) and Nawanshahr Branch 14 miles long

The total length of the Main and Branch canals is 690 miles and of distributaries 2200 miles

TRANSMISSION LINES

The transmission system has been designed with the dual consideration that while initial costs should be kept as low as possible the system should be flexible so as to enable increase of capacity later on as the load develops

A double circuit transmission line is provided from Bhakra to Delhi via Nangal Power House No I, Ambala and Panipat which will be initially insulated for operation at 132 K V The towers and conductors are designed for 220 K V so that when the load goes beyond the capacity of 132 K V line it can be converted for 220 K V operation by adding extra insulation Step down sub stations will be located at Ambala Panipat and Delhi The portion between Nangal Power House No I and Bhakra is being utilized initially for supplying construction power to Bhakra Dam by erecting a temporary 132 11 K V Substation at Bhakra

Another double circuit 132 K V transmission line will run from Nangal Power House II to Ludhiana where it will bifurcate into two single circuit lines one running to Jullundur to link up with the existing Uhl River system and the other to Sri Ganga Nagar via Moga and Muktsar Step down sub stations will be located at Ludhiana Jullundur Moga Muktsar and Sri Ganga Nagar A double circuit 132 K V line is also provided between Nangal I and Nangal II

A single circuit 132 K V line is provided from Panipat to Rajgarh with a step down sub station at Hansi enroute Another single circuit 132 K V line is proposed from Ambala to Saharanpur for supply of Power to U P

There are two 66 K V lines from Ambala, one single circuit to Nabha with the step down sub station at Rajpura and Patiala for giving supply to Patiala (Pepsu) and the other double circuit to Chandigarh which proceeds as single circuit and terminates at Simla with step down sub stations at *Surajpur and Solan Another single circuit 66 K V line runs from Panipat to Abdullapur with step* down sub stations at Karnal and Indri

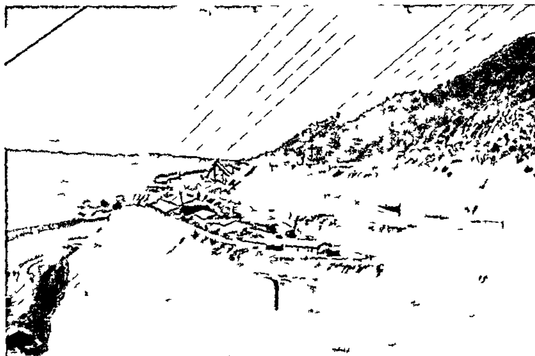
There are five 66 K V single circuit lines for supplying power to Rajasthan Two of these lines emanate from Sri Ganga Nagar sub station to feed Suratgarh and Karanpur and the other three from Rajgarh grid sub station to feed Ratangarh Sikar and Bahadra respectively

SCHEDULE AND PROGRESS

When will Project be completed ? When will the potentialities of the scheme become realities ? When will the common man feel the impact of this great development ? These are important questions and fortunately the answers are in sight Undoubtedly the full benefits will become available only when all the units of the Project are constructed But the benefits will not be withheld from the people for long The schedules have been so arranged as to bring some measure of these benefits as each stage of construction is completed



Rt ht di ersion tunrel—upstream portal water is seen entering irto the tunnels



Bhakra Dam Construction plant layout panorma Six \o cement silos are seen in the foreground

Irrigation supplies and power generation are the main objectives of the Project The food and fodder situation in the country warrants that irrigation be given priority The concentration of construction activities has therefore been on the development of the irrigation system There is much surplus water in the Sutlej River during the summer monsoons and although it cannot be stored without the Bhakra Reservoir *in operation it is possible to divert much of it for the summer or Kharif crops* With this objective in view work was initiated on the main diversion structure—the Nangal Dam—and the network of canals which carry the water for the arid regions to be served by the Project

Bhakra Canals were put in operation in July 1954

Nangal Hydel Canal was completed in 1954

Nangal Dam completed in 1953

Ganguwal Power House on Nangal Hydel Canal was commissioned in January, 1955

Kotla Power House on Nangal Hydel Canal is expected to be commissioned during 1956

The schedule of operations at Bhakra Dam contemplates completion in 1960 But some storage in the Bhakra Reservoir will commence before then This storage which will progressively increase with the height of the dam will be utilized for the development of perennial irrigation

The programme and the target dates are summarized in the following table

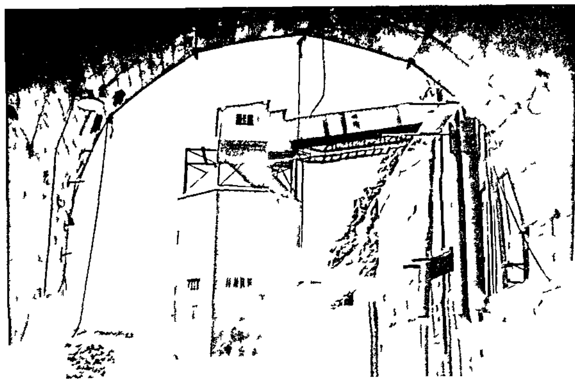
1	Completion of Diversion Tunnels	July, 1953
2	Temporary diversion of the river	December 1953
3	Final Diversion of the river	October 1954
4	Excavation of Dam foundations (completion)	October, 1955
5	Starting concreting of Dam	November, 1955
6	Completion of Dam	*1960*
7	Nangal Dam	Completed
8	Completion Nangal Hydel Canal	April 1954
9	Completion Nangal Power Houses	
	Power House No I	July, 1954
	Power House No II	1956
10	Remodelling Sirhind Canal	April, 1954
11	Remodelling Rupar Headworks	April, 1954
12	Bhakra Canals	1954
13	Bist Doab Canal	1954
14	Transmission	*1954 55*

BHAKRA DAM—NEW CONSTRUCTION TECHNIQUES

A structure 680 feet high above the excavated bed rock with a further depth of upto 50 feet or more below the Dam foundation level Bhakra Dam will be actually a few feet higher than even Boulder Dam which is so far the world s highest Dam Due to the relatively poorer nature of the strata in which *claystone* layers intervene Bhakra has foundations which are unique for such a structure This factor



Excavation at the Bhakra Dam site in progress Shovels and euclids toiled up and down round the clock to excavate 148 million cubic feet of rock



The 110 ft high concrete batchin and mixin plant at Bhakra It houses four mixers eacl of 4 cubic yard capacity

rural electrification, railway trains powered by electricity, phenomenal development in industry, and the like must indeed have inspired those who conceived this project

An extremely important aspect of the indirect returns of the Project is that of employment Ever since India achieved independence and the State was divided at the time of partition between India and Pakistan the most pressing need has been that of rehabilitating the countless refugees who sought shelter in India Most of these virile cultivators and artisans are now either idle or underemployed To them the Bhakra Nangal Project holds forth the promise of homes left behind and security long forgotten

The Bhakra Canal system will serve an area that has a scant rainfall and is periodically subjected to the ravages of famine In the years 1938 to 1940 the State Government spent over rupees 30 million for relief to this famine stricken area to protect the entire population from extinction A similar situation today, with the prevailing high prices and food shortages would indeed be a major catastrophe, before which the cost of the Bhakra Nangal Project would pale into insignificance

The story of the Bhakra Nangal Project is the story of a nation at work of a nation answering the challenge with deeds rather than words of a nation fighting the battle of wresting from nature its bounties and of employing them for the good of humanity at large The Bhakra Nangal Project is but a link in this great struggle but it is an important link It is one of the first being forged out of the sweat and toil of the engineers and technicians the farmers and workers It is one of the biggest links in this chain that will lift the Indian people from the abyss of despair and dependence privation and want and bring into their lives an era of sunshine and plenty Indeed the story of the Bhakra Nangal Project is the story of the shape of things to come

DAMODAR VALLEY CORPORATION

The Damodar Valley lies north west of Calcutta Already the centre of India s heavy industry, it is still under developed but potentially it is one of the richest industrial and agricultural belts in the world An attempt is now being made on a national scale to raise the standard of living of the people by developing both industry and agriculture under a programme of unified development of the whole valley

Implementation of the Damodar Valley development scheme has been envisaged in two stages The first phase includes the construction of four dams at Tilaiya Konar Maithon and Panchet Hill three hydro electric stations at Tilaiya Maithon and Panchet Hill the steam power plant at Bokaro and the transmission system and the Durgapur barrage and the associated canals and distributaries The first phase, due for completion in 1955 is expected to cost Rs 89 10 crores but the benefits will include irrigation of 1 025 762 acres of land and generation of about 300 000 K W of installed power from which the Damodar Valley Corporation will earn annually Rs 38 26 crores The second phase comprises the construction of three more hydro electric dams at Aiyar Bokaro and Balpahari and the power weir at Bermo

The Damodar Valley scheme has a catchment area of approximately 8500 square miles in the States of Bihar and West Bengal The Upper Valley in Bihar is exceptionally rich in mineral wealth and is at the same time well suited for the development of forests The Lower Valley mostly lying in West Bengal on the other hand, contains some of the best agricultural lands in the country Development of such a valley assumes all the more importance when other economic advantages of the region are taken into account, namely close proximity of the area to the port of Calcutta fairly good rail and road communications and the relatively high degree of industrialisation already achieved particularly in the coal and iron and steel industries



The first bucket of concrete at Bhakra poured by the Prime Minister on 17th November 1955

The Damodar Valley Corporation was established in July 1948 following an Act passed by the Central Legislature Apart from such functions as irrigation water supply electrical energy and flood control it has been invested with the obligation of promoting and operating schemes for navigation, afforestation soil conservation use of lands resettlement of displaced population sanitation and public health as well as industrial economic and general well being of the people in the Valley and its area of operation Thus it devolves on the Damodar Valley Corporation to develop the resources of the valley as a whole and to open up the rich countryside

The three participants in the Corporation are the Government of India and the State Governments *of Bihar and Bengal But the Corporation is an autonomous body having perpetual succession and a* common seal It functions under a Chairman and two members all of whom are appointed by the Government of India in consultation with the State Governments who are represented on the Advisory Committee The Government of India however retains to itself overriding powers

Actual work had already begun on the unified development of the Damodar River before the formation of the Damodar Valley Corporation The havoc caused by the floods in 1943 had made the Government realise the urgency of such a scheme In 1945 a multipurpose plan was prepared by Mr W L Voordum Hydro Electric Member Central Technical Power Board This plan was approved by the Government in 1946 Under the direction of the Board substantial progress was made especially in regard to survey planning and design between October 1947 and June 1948 during which period an Administrator was incharge of the scheme

Economic development is one of the major objectives of river valley development projects In the initial concern with the design and construction of dams and power house however the industrialization phase of the development programme is too frequently put aside for later consideration There is likely to be expectation that industries will grow up spontaneously once electric power and water are available

It is true that power and water are among the major considerations for many industries Some will locate voluntarily in a region where these resources exist But varied types of industries are required to obtain a balanced industrial economy for a region one which will most thoroughly capitalize on all of the local resources and most fully meet the requirements of the local inhabitants and of the nation There are always opportunities to improve the traditional industries to introduce new ones and to simulate a more rapid rate of development

A river valley development project being concerned with a well defined geographic unit with many common characteristics is a logical and effective medium for conducting an industrial development activity Being essentially an action agency responsible for constructive results a Regional Development Authority is likely to be more realistic and productive and less handicapped by bureaucratic procedures than other governmental organizations The primary objective of any development project is the optimum utilization of all the available resources Providing new power and water resources is only an initial step towards the agricultural and industrial developments which are the actual wealth producing activities

TILAIYA DAM

Built on the river Barakar about 130 miles above its confluence with the Damodar Tilaiya was the first multipurpose dam of the Corporation Kodarma on the Grand Chord line of the Eastern Railway in the nearest railway station—some 10 miles from the dam site

The construction of this all concrete dam started in January 1950 and was completed by December 1952 Of the two 2 000 KW hydro electric generators installed departmentally the first was

switched on by the Prime Minister on the 21st February 1953 The second set has been in operation from the 10th July 1953 While the resultant stored water will be harnessed at Durgapur for permanent irrigation the dam is contributing to the moderation of floods in the Lower Valley

The Dam was designed and constructed departmentally Manufactured in Japan the hydro electric power plant consisting of two 2 800 BHP 250 RPM vertical shaft Francis turbines directly coupled to 2 500 KVA 11 KV alternators is capable of a continuous output of 2 000 KW The hydro electric station and the 11/33 KV step up outdoor substation were also designed and constructed departmentally Since the opening of its first unit the plant has been supplying commercial power to Hazaribagh town Kodarma town and mica mines and the adjoining villages More and more mica fields and towns in the neighbourhood are also being connected up

The new reservoir having submerged a portion of the old Kodarma Singrawan road seven miles of a new one together with 350 ft bridge were constructed by the Damodar Valley Corporation in about six months time as a link to the Patna Ranchi National Highway The people displaced by the reservoir were given the option of choosing between cash compensation and Land for Land and House for House Four new villages have been built in the locality to house the affected population and over 4 500 acres of badly eroded waste land have been reclaimed This was a three crore project

THE KONAR DAM

Konar the second of the four multipurpose dams included in the first phase of the Damodar Valley Project is situated in the Hazaribagh district across the river of the same name 15 miles above its confluence with the Damodar

Construction of the Rs 13 79 crore Konar project was taken up in the middle of 1950 and is now nearing completion Built across the Konar in a beautiful wooded valley the dam will rise 160 feet above the river bed Its overall total length is 12 959 feet which comprises the 910 foot long gravity type concrete dam and spillway 4 000 foot and 5800 foot long respectively right and left earth embankments and a 2 249 foot long saddle dyke The maximum width at base of the spillway section is 147 feet and of the earth embankment 850 feet The total discharge capacity through sluices will be 6500 cusecs and of the overflow spillway 240 000 cusecs The drainage area of the river basin is 385 square miles with an average annual rainfall of 51 6 inches The reservoir will submerge an area of 6 600 acres with a total storage capacity of 260 000 acre feet of water and the backwaters will be 9 river miles long

The dam which will provide permanent irrigation in the lower valley generate hydel power and supply 400 cusecs of cooling water to the Corporation s thermal power station at Bokaro is of the composite type with a central concrete gravity type spillway fitted with gates and earthen embankments on the flanks An underground power station 450 feet below the bed level with a seven mile long tail race tunnel for the generation of hydel power from this reservoir is proposed to be taken up later

MAITHON DAM

Maithon Dam is the third project in the first phase of the Damodar Valley scheme and is expected to cost Rs 13 90 crores The dam will be bigger than both the Tilaiya and Konar dams and is being built on the Barakar River just above its confluence with the Damodar The drainage area of the river basin is 2 430 square miles The total storage capacity of the reservoir will be 1 104 000 acre feet of water and it is going to submerge 26 500 acres of land with backwaters extending to 16 river miles The height of the dam above the river bed will be 162 feet the length of the concrete spillway 622 feet the main earth dam 2 005 feet and the earth dykes 11 940 feet The maximum width at the bas of the spillway section

will be 132 feet and of the main earth dam 940 feet The total discharge through sluices will be 70 000 cusecs and the discharge capacity of overflow spillway will be 510 000 cusecs The dam is built departmentally

It is constructed departmentally The placing of the main earth dam on the river bed began in October 1952 and the river Barakar was diverted into a tunnel cut into the left bank in December 1952 For the monsoon flow a diversion channel was completed on the right bank in June, 1953 and the main earth dam had risen to about 90 feet above the river bed by April, 1954

The erection of the construction plant and its component parts, trestle bridge etc, for crushing stone and mixing and pouring concrete, have all been completed Concreting of the spillway started in February 1954 and is scheduled to be completed in 1955

The excavation for the intake structure for the underground power house started in April 1954 The excavation for the access tunnel and work on the main power house structure began in May 1954 the power house is expected to go into operation by the middle of 1956

Maithon is the largest of the Corporation s construction camps and has over 750 buildings of all kinds The available facilities are appropriate for a modern township and include a middle school recreation club buildings with swimming pool, a hospital and a well equipped dispensary

Its central situation makes Maithon the construction headquarters of the Damodar Valley Corporation and provides a natural site for the Corporation s soil and Concrete Laboratories Timber and Mechanical Workshops Central Stores and other godowns The main distribution centre for Sindri power is alco located here

PANCHET HILL DAM

The Rs 14 88 crore Panchet Hill project is the largest of the Damodar Valley Corporation Projects included in the first phase of the scheme It may rightly be described as a counterpart of the Maithon dam like Maithon on the Barakar it is being built on the lower reaches of the Damodar River and like Maithon it is primarily meant for controlling floods With the completion of the Panchet Hill dam in 1955 the first phase of the Damodar Valley Corporation scheme comes to a close

The height of the dam above the river bed will be 133 feet the concrete spillway will be 775 feet long the main earth dam 1 800 feet long and the total overall length of earth dykes 21 315 feet The maximum width at base of the main earth dam will be 800 feet and that of the spillway section 96 feet The total discharge through sluices will be 140 000 cusecs and the discharge capacity of overflow spillway 638 000 cusecs The reservoir will submerge an area of 22 800 acres with backwaters about 26 river miles long and a total storage capacity of 1 214 000 acre feet of water The drainage area of the river basin is 4 234 square miles

The four main dams at Tilaiya Konar Maithon and Panchet Hill will protect the Lower Valley from the highest flood hitherto recorded while all the seven dams—including the three of the second phase at Aiyar Bokaro and Balpahari—will be capable of holding floods of the magnitude of a million cusecs This will completely free the Lower Valley from the constant threat of devastation that the capricious Damodar causes so frequently

The two other main functions which these dams will perform in addition to flood control are the generation of hydro-electric power and the regulation and supply of water for irrigation during the months

when the normal flow in rivers is insufficient to maintain crops Apart from these two—both of which will be discussed in this book separately—the dams are going to serve as centres of recreation All the dams are situated in hilly terrain and the surrounding country can be easily developed into scenic spots which will invite a fairly big tourist traffic, and also afford excellent opportunities for relaxation to people in the pre eminently industrial Damodar Valley itself A beginning is being made shortly in this direction at the Tilaiya dam by providing facilities for swimming yatching fishing and duck shooting An added attraction for tourists will be the presence in the neighbourhood of mineral springs whose waters have been found to possess radioactive and medicinal properties

MINOR DAMS

In addition to the four major dams the Damodar Valley Corporation is building a number of small reservoirs in the headwaters of the river system Six of such small reservoirs have so far been completed four in the Tilaiya area and two near Hazaribagh town These are intended to retard the silting of the major dams through a programme of progressive soil conservation and land reclamation which would at the same time provide land to those whose land has been submerged under water they will also make avail able the excess run-off from upland fields for irrigating lower paddy fields and finally they will meet the water requirements of nearby towns

PRODUCTION

In terms of main crops the additional production of food grains will be rice 216 076 tons Rabi 133 200 tons and straw 17 874 600 maunds The total additional foodgrain production would be a little less than 350 000 tons which at current prices would be worth Rs 30 48 crores The extra production of jute will yield another Rs 3 60 crores from an area of 100 000 acres This is envisaged under a double cropping system while at present the Lower Valley is mostly single cropped Damodar Valley Corporation experts even see the possibility of introducing three crops a year after the pattern of Egyptian agriculture

BENEFITS

Multi purpose Project

The Damodar Valley Project started as a flood protection scheme But later on it was advised that that this scheme should be made as a multi purpose by providing for irrigation and generation of power as well so that the waters of the Upper Damodar Catchment might be utilised to better advantage and the schemes might be economically viable Though flood control was an urgent necessity it is not directly productive of revenue and has to be regarded as an insurance measure It was felt that by combining irri gation and generation of power there would be substantial revenue Also the Project will lead to rapid economic development of the entire Damodar Valley

Flood Control

The Damodar is a river of sorrow It is no doubt a harmless looking small river about 336 miles long and having its origin in the hills of Chota Nagpur in Western Bihar But the monsoon floods in the Domadar are invariably very destructive leaving in their wake a dismal picture of an impoverished countryside ruined crops uprooted people dead cattle and railways and roads seriously breached Not only is the region isolated from the rest of the country people suffer from hunger and disease

Inspite of attempts at controlling the river embankments there have been disastrous floods from time to time A very fertile area has been under constant threat

The Damodar Valley Project is designed to give protection against the highest recorded flood The storage in Maithon and Panchet Dams will largely be utilised for moderating the floods But already

the Tilaiya and Konar Dams which have been completed are having some beneficial influence The Maithon Dam though still incomplete will also retard the floods to some extent The full immunity will be attained by 1958 on completion of the Maithon and Panchet Hill Dams The benefits of flood control are no doubt largely protective but will be substantial and will be reaped mostly by the peasantry

New Colonies

Near the sites of the dams new colonies have already sprung up to house for the present, the staff engaged on construction These colonies which contain about 1 500 permanent buildings have been provided with all modern amenities of life such as electricity water post offices schools and hospitals The hospitals have so far treated over 350 000 people including a considerable proportion of neighbouring villagers These colonies have very good prospects of developing into industrial townships when certain new industries are established near the sites of the dams where they can enjoy the benefits of easy availability of power and water

Irrigation

The Project will give Kharif irrigation to 10 lakh acres in the districts of Burdwan and Hooghly in West Bengal Out of this area 3 lakh acres will also get rabi irrigation and grow more than one crop A portion of the commanded area nearly 1 8 lakh acres is at present served by a canal system fed from a weir across the Damodar The irrigation in this area is not so satisfactory as there is no storage which can guarantee supply in periods of shortage This area will now get assured supply Irrigation will commence from the Durgapur Barrage shortly There will be progressive increase in the irrigation acreage in 1956 and 1957 By 1958 the entire commanded area will be covered Some storage has also been reserved for irrigation in the Upper Damodar Valley which is situated in Bihar Owing to the undulating nature of the Upper Valley irrigation schemes direct from the reservoirs are somewhat expensive and some schemes which had been investigated in the past had to be turned down on account of the high cost But investigation is proceeding and one scheme for irrigating 17 000 acres seems attractive enough The corporation is anxious to devise schemes for irrigation in Bihar

Though the value of irrigation is more or less well accepted a doubt has been expressed in some influential quarters that irrigation is not so necessary in West Bengal and the Corporation will not be able to sell the water at a remunerative rate This impression is based primarily on the refusal of the peasantry to take water from the Mayurakshi Canal system in the years 1952 and 1953 It has to be admitted that in the past irrigation schemes in West Bengal were largely considered protective The monsoon is generally favourable and ordinarily the cultivators are in a position to grow a kharif crop without the aid of irrigation But the recent studies clearly prove that irrigation can revolutionise agriculture Once supply of adequate water is assured better agronomic practices can be introduced and production can be greatly stepped up by the use of fertilizers and improved seeds The average yield of paddy per acre in the lower Damodar basin is 10 maunds or more per acre With proper use of fertilizers and better seeds the yield will be substantially higher But we should not confine our calculations to the cultivation of paddy alone To get full value out of the irrigation there must be a more diversified cropping pattern A large acreage should be turned over to sugar cane potato oil seeds wheat and vegetables enabling the peasantry to get much higher return and a more substantial diet It is not unlikely that growing of fodder will also be considered more remunerative in some areas

The Corporation is alive to the need of improving agricultural practices in the irrigated zone Development of agriculture is of course the responsibility of the State Government But the Corporation is anxious to play an active role in this sphere so that the benefits may reach the people sufficiently early It has been taken over an area of over 200 acres near Panagarh for an experimental farm Here the latest

ideas for improvement will be carefully tried out by a band of experts The results will then be shown to the cultivators in a number of demonstration farms in collaboration with the State Government It is hoped that within a decade the pattern of agriculture will be substantially changed and the economic condition of the peasantry will vastly improve

Power

At present the Corporation is supplying power from the Bokaro Thermal Power Station which has three sets capable of producing 50 000 KW each and there is only a small hydro electric station at Tilaiya with a capacity of 4 000 KW Some critics have often questioned the necessity of a thermal power station in the Damodar Valley Project and have expressed the opinion that the Project should have been confined to hydro electricity only This criticism loses sight of the fact that there is tremendous demand for power in the Damodar Valley itself and the adjacent industrial areas of Calcutta and Jamshedpur and the most satisfactory and economical way of meeting this need is to have an integrated system of hydro and thermal power The water resources of the valley are not large enough to meet even the present need for power Also all the water cannot be utilised without affecting many valuable mineral deposits Another important consideration is that the present demand for power is only a fraction of the potential demand of this area The abundance of coal and other valuable minerals the proximity to the port of Calcutta the existing communication facilities and industrialisation of the area creating a tremendous demand for power This demand can be best met by building a grid based on optimum use of available power It would have been a very shortsighted policy to utilise hydro power for supplying some local demands only and to leave the larger requirements of the area to be met by an independent system based on thermal power only

When the First Phase of the Damodar Valley Project is completed the Corporation will have a total capacity of 1 04 lakh KW of hydro power and 1 72 lakh KW of thermal power After making allowance for stand by the firm system capacity is rated at 1 97 lakh KW According to the load forecasts worked out by competent experts this capacity will prove inadequate by 1959 60 Further provision has been arranged for a 50 000 KW thermal set at Bokaro and a 40 000 KW hydro set at Konar If the proposed steel plant is located in the Damodar Valley as it seems likely the capacity will have to be still increased

Under the Damodar Valley Corporation Act the Corporation can sell electric energy only where the energy is taken by the consumer at a pressure of 30 000 Volts or more It can therefore deal with the bigger industrial undertakings or authorities holding licences for local distribution Over a large area in Bihar and West Bengal the State Governments are now themselves acting as the distributors purchasing power in built from the Damodar Valley Corporation A question is often asked whether the Damodar Valley Corporation power is going to benefit the common man It should be under the Act from dealing with the small consumer It has to supply power in bulk to parties who add on their own costs for retail distribution and charge their own tariff The rate at which these distributors will purchase power from the Damodar Valley Corporation will seldom exceed 75 of an anna per KW hour and they should be able to keep their rates of supply reasonably low

Apart from supplying power in bulk the Corporation is taking a keen interest in the increased use of power in small rural crafts It has set up a team of experts for studying the possibilities in this direction It has also started a few small industries in rural areas for demonstrating how some of the traditional crafts can be wedded to power with advantage Though electrification of the rural areas is primarily the responsibility of the State Governments, the Corporation will do all that is possible with its limited resources to encourage the use of power by the villagers

Other Benefits

The Damodar Valley Corporation Act authorises the Corporation to undertake several other functions for the development of the Damodar Valley So far the Corporation has devoted its attention mostly to the three main objects namely flood control, irrigation and power As the constructing phase is coming to a close more and more attention is being given to the other functions Of these the greatest importance attaches to the control of soil erosion in the upper valley That soil erosion is fast growing into a serious problem in India was known until recently only to a body of experts Now there is a general realisation that India has been steadily losing some of her best top soil and that remedial measures must not be delayed any longer The Corporation appreciated this problem from the beginning and has built up an efficient organisation for basic investigation, surveys and experiments It is now taking up large conservation schemes As most of the upper valley is well populated and the land is mostly owned by small farmers the soil conservation work has to be undertaken with the cooperation of the villagers This is an arduous task as the farmer has to be convinced that it is worth his while to divert his labour and limited resources to this work A band of trained men are now working with the villagers and are trying to raise their enthusiasm by demonstration schemes subsidized by the Corporation These and many other welfare measures are the responsibility of the Corporation according to the Act But all these will cost money The Act has not given the Corporation any appreciable source of revenue It has to get the funds from the three participating Governments namely West Bengal Bihar and the Central Government The welfare and general development activities of the Corporation are therefore limited to the extent to which it is given funds for such work

Fisheries

With a view to raising the nutritional standard of a people whose diet is deficient in proteins the Damodar Valley Corporation plans development of fisheries along scientific lines Excellent opportunities for fish culture will be created by the impounding of water in the four major reservoirs formed at Tilaiya Konar Maithon and Panchet Hill and the six small dams in the Upper Valley and in the lower valley by the proposed barrage and network of canals The scope for fish culture will be further enlarged when the remaining three major dams of the second phase of the Damodar Valley Scheme are completed by 1960

After the completion of the first phase in 1955 the reservoir will cover an area of about 50 000 acres during the monsoon months which however will shrink to about 18 500 acres during the dry weather Even this together with the 1 500 miles of canals and distributaries in the lower valley should make possible fish cultivation on a large scale A target of 50 000 maunds of fish per year is expected to be attained, and this will meet the requirements of the industrial area of Bihar as well as the large market in Calcutta In terms of money this supply is valued at Rs 40 lakhs a year at Rs 80 per maund—a rate which is half the current price in Calcutta and neighbouring areas

The Central Inland Fishery Research Station and the Damodar Valley Corporation carried out a survey some time ago of the fish fauna in the streams and rivers of the valley The 15 species of fish of economic importance found were Catla Katla Labeo bata, Wallago attu Mystus aor Callichrous Labeo boggut Labeo dero B sarana Barbus chagunio and Glossogobius giuris In the 100 acre foot Deochanda dam 26 000 fry of rohu catla mrigala and calbasu less than two inches in size, were released In about 8 months, without any fertilisation catla weighed 4 lbs rohu 8 ozs mrigala 10 ozs and calbasu 8 ozs Similarly 400 000 fingerlings have been released in the Tilaiya dam The corporation is carrying on experiments on the growth of fish by various cultural treatments

Afforestation

On the total Damodar Valley catchment area, nearly one and a half million acres are under forest and jungle Existing forests have however been almost ruined on account of poor management and indiscriminate cutting and burning of trees Not only will the Damodar Valley Corporation save these disappearing forests on the other hand it plans to reafforest 750 000 acres of the one million acres of wasteland to be reclaimed In the first five year period the Damodar Valley Corporation plans to reclaim 50 000 acres Detailed surveys have been made of areas in the resettlement zone

An important feature and adjunct of the afforestation plan is the 3 5 acre nursery at the D ochanda Experimental Farm where preliminary tests conducted take into consideration apart from the suitability of soil that tree grown will make available plentiful supplies of firewood and also help growth of certain industries Afforestation will render great help to soil conservation in the valley

HIRAKUD DAM

The Mahanadi is the largest of the rivers in the Orissa State It carries to the sea every year the surplus flow of the monsoon rains caught by over 50 000 square miles of land on either side of it all along its 533 miles course through Madhya Pradesh and Orissa But only an insignificant amount of all this water is being used for beneficial purposes In fact in its passage to the sea the flood water causes every year immense damage to land and life in the valley Most of the land in the region lies at the m rcy of the rains suffering either from scarcity or surfiet of water In case much of the water now running to waste is so used up there can be hardly any recurring floods which now terrorise the population

The Orissa State now the play ground of the Mahanadi is one of the rich st in its natural resource Apart from the mountains of water that go romping to the sea there are in the State untapped treasures above and below the earth There are forests for fuel timber paper and textiles iron ore for ste l bauxite for aluminium ochre for paints graphite for pencils and arc lamps limestones for cement coal for power and chemicals—almost everything that can change the face of the backward territory into an industrial paradise

History—Hirakud Project

Hirakud a once tiny village on the banks of the river Mahanadi in Orissa State has becom world known For here is being built the longest concrete dam in India and also the world s

The first stage of the Hirakud Dam Project consists of a dam across the Mahanadi river 9 mile from Sambalpur (Orissa) with irrigation canals taking off from the reservoir on either side and hydro electric installations There will be a power house at the base of the main dam with an installed capacity of 123 00 kw The main dam situated below the confluence of the Mahanadi and Ib rivers will be 15 748 feet long with 12 8 miles of low earthen dykes on the two sides A total length of 8 768 feet of the main dam will be in concrete and masonry to serve as power dam and spillway and the remaining will be of earth The reservoir will have a gross storage capacity of 6 6 million acre feet The first stage of the project is estimated to cost about Rs 70 78 crores

The complete control and full exploitation of the Mahanadi for the over all development of the valley can be achieved by the construction of three dam at Hirakud Tikarpara and Naraj

The Central Water & Power Commission therefore recommended that the Hirakud Dam be taken up first for construction as it was technically the simplest and would yield quick results

The Hirakud Dam will rise to a maximum height of about 195 feet from the river bed and will leap across the river from the left bank to the Hirakud island and thence to the right bank It can store up enough of flood waters to cover about 67 lakh acres—roughly the district of Koraput in Orissa—one foot deep The huge bulk of water so stored will make the ever hanging threat of floods in the valley a nightmare of the past

Hirakud Dam—Important Features

Steadily gathering pace through years of back breaking work of thousands of men, the stride of construction at Hirakud today is almost at its peak The colo sal earth dam the longest of its kind in India is being etched higher and higher against the vast boundless sky And nature too by unusally brief rains lent a helping hand during the last season The last working season like the season before has witnessed much that was scheduled for a later programme

The main dam with its concrete spillways and the earth dykes on the flanks are shaping up a giant edged bowl to be stored with ever renewing water The life lines the canals are being carved out for unfailing supply of 6 72 lakh acres of land now dependent on fitful rains Simultaneously power line are stretching out from the power house under construction at the right end of the Hirakud Dam

The Project comprises —

1 A 3 mile concrete cum earth dam sandwitched with sections of concrete and masonry flanked by low earthen dykes 6½ miles on the left and 6¾ miles on the right

Spillways are built in concrete the Power Dam and transition walls in hand placed random rubble masonry and the remaining portions of the dam are of zoned rolled earth fill Top level of the dam will be 197 feet above the deepest foundation

2 Canal system consisting of 2 main flow canals and an extensive network of branches distri butaries and minors

There will be 5?2 miles of canal branches distributaries and minor and some 9 500 miles of water courses

3 A power house with four generating units at the main Dam with an installed capacity of 123 000 KW (firm capacity 85 000 KW) with provision for 3 more generating sets for future use

4 *506 miles of high voltage transmission lines These form the first stage of the Project and will* cost Rs 70 78 crores

The enormity of the work can be gauged from the fact that 43 24 crore cubic feet of earth 381 lakh cubic feet of concrete and masonry and 473 lakh cubic feet of stone work are involved just on the main dam The earthwork on dykes involve 19 77 crore cubic feet and 66 67 crore cubic feet of earth have to be dug out for the canals

Such a colossal work will naturally call for immense manpower and mechanical equipment for successful completion During peak construction nearly 37 000 workers were employed on the project Yet the work is too colossal for mere men High capacity machines have therefore come in for speed and economy Concreting and earthwork are done almost wholly by mechanical equipment For this besides a variety and number of earth digging loading and hauling equipment of large capacities, there are two stone crushing and conveying plants feeding two huge concrete mixing and batching plants located at either end of the main dam

Hirakud Dam—Programme and Latest Progress

For the season 1954 55 (October 1954 to September 1955) it was programmed to place 9 4 crore cubic feet of earth and 90 lakh cubic feet of concrete and masonry and 108 lakh cubic feet of riprap rockfill and filter blanket on the main dam It was proposed to raise the earth dam to 582 5 feet above sea level throughout its length and the Left Spillway to its crest 610 feet above sea level The Transition and Cut off walls were to be completed to final levels

On the right side the Spillway was scheduled to reach a level of 538 5 ft above sea level The four blocks of the Power Dam were also to be raised to 550 ft above sea level

Against this programme up to the end of June 1955 11 9 crore cu ft of earth work and 110 lakh cu ft of riprap rockfill and filter blanket were done during the season on the earth dam raising it mostly to 600 ft above sea level The total quantities of earthwork and rockfill and riprap and filter blanket done on the dam came to 34 55 crore cu ft (79 9 per cent) and 344 lakh cu ft (72 7 per cent) respectively

The foundation excavation was completed The left spillway was taken to 616 5 ft above sea level with its transition and cut off walls completed to final levels On the right side the spillway reaches 560 ft above sea level To reach these levels in Spillways transitions and Power Dam to 530 ft a total of 118 6 lakh cu ft of concrete and masonry was laid on the main dam during the eason to the end of June 1955 against the season s programme of 90 lakh cu ft of concreting and masonry (89 5 per cent) to the end of June 1955 In the Left Spillway the embedded parts for 10 sluice gates and 40 emergency gates have been fixed in position after final adjustment

The embedded parts for 24 sluices and 24 emergency gates have been lowered and fixed in position in the Right Spillway

On the Dykes 3 41 crore cu ft of earthwork and 47 lakh cu ft ruble packing were done during the season to the end of June 1955 against the seasonal programme of 3 78 crore cu ft and 39 lakh cu ft respectively This brought the up to date total of earthwork on dykes to 17 05 crore cu ft (86 per cent) and of rubble packing to 170 lakh cu ft (80 per cent) In canal system excavation was done to the extent of 7 22 crore cu ft against 6 2 crore cu ft programmed for the whole season This completed canal excavation to 51 74 crore cu ft (77 per cent)

Thirty-six masonry structures along the main canal and branches and 42 structures along distributaries and minors have been completed Work on 130 structure along main canals and branches and 74 structures along distributaries is in progress The work on investigation and excavation of water courses is progressing satisfactorily

Hirakud Dam—Progress in the Earlier Phase

By September 1954 a little more than half of the earthwork as well as of concreting and masonry and of rockfill riprap and filter blanket were complete on the main dam The main earth dam reached an average height of about 128 feet on the Left Earth Section and Hirakud island to an average of about 100 ft on the Kuharkud island portion The Left Spillway rose to 115 ft and its transition and cut off block to an average of 158 ft The Right Spillway rose to 115 ft and its transition and cut off blocks to an average of 158 ft The Right Spillway blocks were between 66 and 82 feet The left and right Transition blocks reached the average level of 103 ft and the seven blocks of the Power Dam were raised to an average level of 75 ft

The penstock pipes which bring water from the reservoir behind the dam to the Power House and other related works were under erection Preparation of foundations difficult and slow was almost complete

On the dykes a total of 13 64 crore cu ft about two thirds of earthwork and 123 lakh cu ft or a little more than half of rubble packing and in the canal system two thirds (44 52 crore cu ft) were done to the end of September last Survey of all the transmission line routes were complete and work began on the 132 kv lines

Hirakud Dam—Organisation

The Government of India are executing the project on behalf of the Government of Orissa A Control Board with the Chief Minister of Orissa as Chairman is in over all charge of the Project under the general supervision of the Government of India On the recommendation of the Control Board and the Government of Orissa the revised estimate for Stage I amounting to Rs 70 78 crores has been approved by the Government of India

The second stage of the project comprises delta irrigation the power channel subsidiary dam and installation of additional power units Two schemes prepared in this connection are under consideration of the Government of India in consultation with the Planning Commission

Hirakud Dam—Benefits

Many and munificient are the gains that will spring from the multi purpose Hirakud Dam Project Irrigation will be vastly expanded not only large tracts already under cultivation will be assured of lasting supplies of water but new areas will be opened up for irrigation Apart from the land fed directly by the Hirakud canals a million more acres of rich silted soil in the Mahanadi delta will be irrigated by the waters released from the Hirakud lake The fear of drought will be equally remote as the water in the Hirakud lake will obviate the need for timely rain Thus the extremes of flood and drought shall be no more effective in bringing whimsical changes in the fortunes of the inhabitants of the valley

Also the tragic aftermath of the floods *i e* the erosion of rich top soil from vast tracts of yielding land will vanish and the valley will become productive and an asset to the nation

Adequate supplies of water to crops at the right time can double and sometimes triple the yield The water can be used for developing electricity to turn the wheels of industry to pump water for the fields factories and homes thresh and pound grain make sugar light villages and towns and produce a number of good things of the earth for comfortable living—all of which will remove greatly the anomaly of poverty admist plenty

Again the same waters can carry men goods grains and minerals of the rich land on either side of the river in boats barges and steamers all the way to the sea And if much of the water now running to waste is so used up there can hardly be any recurring floods which is now the terror and the curse of the Mahanadi delta

The completed project will make available nearly 200 000 kilowatts of cheap power that is expected to be used to the fullest extent for industries and for urban and rural electrification in the course of the next few years Power development will be gradual and with the cheap power to the extent of 3 00 000 kw made available by the project it will be possible to set up an industrial town in the neighbourhood of Sambalpur where factories can be installed for the manufacture of cement iron and steel aluminium paper ferro alloys textiles sugar cotton fertilizers chemicals and other products Raw materials including coal

iron limestone bauxite timber, grasses are available within easy reach It is anticipated that the demand for power will increase from 25 000 kw in 1952 53 to about 3 00 000 kw in 1965-66 or even much earlier

Hirakud Dam—Irrigation Potential

1 094 953 acres of land will receive direct irrigation from this scheme 6 19 065 acres by flow and 4 75 918 acres by lift Besides this direct irrigation the regulated supplies from the dam (ranging between 8 800 to 14 000 cusecs during the dry months against the present minimum of about 1 000 cusecs at Naraj) will provide protective irrigation to the existing irrigated areas in the delta during the critical period when supplies are short and also extend irrigation to the areas in the delta which are likely to be submerged during floods

DYNAMIC ADVANCE

The picture of progress achieved in the field of Irrigation Power in the last eight years is one of dynamic advance in all the phases and spheres over the broad expanse of this subcontinent Whether the field be irrigation or power soil conservation or flood control we have taken strides towards the realization of higher standards by harnessing some more of the vast resources which nature has bountifully conferred upon us

Engineers' Seminars

In order to achieve and maintain a high tempo of development coordination between the various State and Central organization has been intensified The Central Board of Irrigation and Power which is one of the oldest institutions with an all India forum for exchange of information on Irrigation and Power research has arranged several symposia on the cost benefit ratio of River Valley Projects The Central Irrigation and Power Ministry in their desire and anxiety to focus attention on several important questions bearing on the undertaking of new projects and the efficient prosecution of those already in hand arranged their first Engineer s Seminar at Bhakra Nangal in 1953 This was followed by the Second Seminar held at Roorkee in 1954 and the Third Seminar convened at Srinagar in 1955 The scope of these seminars has been extended to cover a variety of subjects ranging from mechanization of construction methods on River Valley Projects to rates and costs based on standardization and uniformity in the techniques in vogue in various states The question of utilization of water for power and for irrigation has been examined in detail as also the use of electricity in rural areas The achievement of the time targets in the completion of River Valley Projects and the scrutiny of the progress of the physical work in relation to the expenditures has also been debated threadbare

The question of personnel required for the River Valley Projects and the nature of the organizations which are necessary for the planning designing and execution of these projects in an efficient and economical manner have also been thoroughly discussed in the seminars Here the engineers administrators and political leaders have met in a democratic manner and short circuited the devious procedures of departmental routine to know what the others are talking about By their contribution the seminars enabled the engineer specialist and the financial expert and the administrator to expound their view point on many a burning problem And as the meetings were attended by the Irrigation and Power Ministers of the Centre and the States further coordination became an easier matter Recommendations and suggestions which met with general approval at the seminar sessions could be further processed and implemented on the authority of the proceedings which were recorded and circulated

Country wide Awakening

The outstanding importance given to the River Valley Projects in the country s Five Year Plan awakened the people into a new consciousness for endeavour The agricultural emphasis in the lives of the

villages of India made them dependent on the vagaries of rainfall and the unpredictable behaviour of rivers and hill torrents The harnessing of these vast resources by storage reservoirs from which water could be released according to the necessity for irrigation and electric power has kindled a unique urge in the people for the earliest completion of such enterprises There is hardly any region in the country today where some minor or major project dealing with the betterment of conditions is not being planned and executed The multipurpose aspect of these projects embodying assured irrigation partial soil conser vation flood control and generation of hydro electric power for industrial outfits has now caught the imagination of the people and they are engrossed with the desire of maximising their effort in the heroic adventure of building the country

All Regions Moving Forward

Besides the Bhakra Nangal Damodar Valley Hirakud and Tungabhadra projects which were the principal projects undertaken about the time when the country attained independence, many more projects have been subsequently included in the development programme of the country The major projects which deserve mention are the Chambal in Madhya Bharat the Kosi in Bihar the Rihand in Uttar Pradesh the Koyna in Bombay and the Nandikonda in Andhra and Hyderabad These projects have filled the gap which existed in some of the important regions

Continuity of River Valley Programmes

The potential of River Valley Projects for raising the production of food and increasing power for industries of the household village and heavy type has already found unqualified recognition through out the length and breadth of the country The programmes undertaken have paved the way for still further projects being started in the same field The demand for a better standard of living and particularly for more electric power being harnessed into the service of man to remove drudgery is full of the quality of automatic growth Once kindled the desire for greater power goes on increasing and the experience of India is hardly going to be any different from the more advanced Western countries

The Union Government and the State Governments have recognized this basic truth and the Second Five Year Plan is again giving a very high place in the country s programme to River Valley Projects—this time with an emphasis on the power aspect of these projects Thus continuity will be secured in these programmes for the next 15 or 20 years and more till the problems of food and unemployment have been solved to the hilt and the present undernourished and underemployed humans will enjoy the benefits of plently in the spheres of agriculture and industry

Technological Advance

Greater emphasis has now come to be placed on the necessity for progress in the technological field The conquest of the forces of nature through human skill is the key to the solution of the problems of misery and want And diverse are the ways in which the colossal elements dormant in land and water can be pressed into the service of mankind The lack of growth of scientific knowledge and technical skill in India is traceable to the mischance of history where in the past *1000* years or so India lost a great deal of her energies due to clashes in the human field which resulted in her enfeeblement and consequent enslavement by foreign influences and occupation India s coming of age has now been certified by the proof she has given of a unique tempto of progress in the field of Irrigation and Power Projects

The greatest coordination has been witnessed in the field of Research and Design which have registered a marked progress throughout the length and breadth of the country Every big state has set up its own Irrigation and Power Research Institute Central Design Organizations are being created in each

state and further linking up of these bodies with the Union Government s Central Water Power Commission is now being initiated *The State Organizations are tackling all the specific problems which are peculiar* to the States and the Union organization is adding further refinement strength and authority to the ex perience and findings of the state organizations A comparison of the advantag s which are flowing as a result of such design *and research coordination with the earlier phases of the development history in the* various parts of the country has shown how superior and effective the present procedures are in the context of overall achievement There are however still quite a few important gaps and the process started in the last 8 years needs to be augmented to raise the tempo and quality of still newer solutions to be found for reaching the targets of development in the minimum time

Puplic Co-operation in the Execution of Projects

An altogether new and revolutionary advance made in the execution of the simpler projects of the country has been in the sphere of voluntary contribution to the effort mobilized for the construction activities Such of the projects as do not need high mechanization have lent themselves to such participation in parti cular Examples are the construction of embankments for the flood control works and the digging of canals and distributory systems for irrigation works

The call for cooperation from the people in the context of the speedy and economical completion of River Valley Projects has received a note worthy response The people showed utmost willingness to be organized into labour cooperatives Whereas a few instances can be cited of purely honorary contribution payment has been made with in the scheduled rates for work done by the local people The quality of their work has earned a tribute from the supervisors and engineers in charge The elimination of the middle man has reduced the overheads in the cost of works and attracted greater initiative and respons from the workers The field has been op ned for the adoption of an idea for which there can be unlimited application in a country where man power abounds and training can be easily imparted to the worker for attaining the desired standards of efficiency

The first chapter has now been written in the history of the development of India s resources for Irrigation and Power Already results are visible of the direct good that the work has brought into the lives and careers of millions of people in the country

This phase is glorious in its own right judged by even the high standards developed by the pro gressive countries during the last century But the programme is sure to excel the records created in the last eight years The genius of this country in the creative field of River Valley Development corresponds greatly to the peaceful and spiritual trends which have conferred greatness on this country since the dawn of history What Rama and Krishna Budha and Asoka achieved in the field of human progress on the moral and spiritual plane is now bing re incarnated in the material well being of the country with the simple common factor of the good of all (Sarvodaya) and injury to none (Ahimsa) May the Providence lead India to the achievement of her destiny as determined by the selfless and *the sincere endeavours of her people*



Shri Morarji Desai
Chief Minister Bombay

CONGRESS RULE

SEVEN YEARS OF CONGRESS RULE IN BOMBAY

IF we have achieved anything or failed to achieve what we desired to achieve it must be viewed against the background of the situation as we found it with all its opportunities and hurdles when the Congress Ministry assumed office in April 1946 in Bombay State They were days of difficulties and uncertainties of all kinds not merely for the State but for the whole country A number of problems were then created by the partition of the country and its aftermath which was even bloody in some parts of the country

Bombay State had bitter memories of even past communal trouble with outbreak of riots even in cosmopolitan cities of the position of Bombay The new situation called for firm and unflinching action based on our basic approach of adhering to the ideals of the Secular State We therefore made a strong and successful stand against communalism and its manifestation in public life Law and order were enforced energetically and a firm grip was maintained on the situation As security of life property and person is the first condition of any Government worth the name of the people it was established for every citizen irrespective of his race caste or sectarian belief No compromise was made on the issue of secularism and fairplay for all and the policy which later was codified in the national constitution was carried out

In certain areas of the State the 1942 movement had released the forces that had been active with violence directed with patriotic motives and as happens during the period of transition we had to face the problem of dealing with unruly elements It was dealt with successfully and after a sporadic outbreak here and there the pockets of unlawful activity and violence were completely wiped out of existence A similar situation arose

when in these same areas mass hysteria was released following the assassination of Gandhiji It was a psychological outburst which subsided and cooled off gradually But it had to be handled with the same firmness we had shown in dealing with any and all lawlessness Harmonious relations between all classes were restored in no time and they continue

The Congress Ministry in Bombay besides this had to face a number of other problems also created by the overall post partition situation in the country The tidal wave of mass exodus broke on the Bombay City bringing to it masses of panicky and dispirited displaced persons the bulk among whom had lost or left behind all they posse sed It was our task and duty to offer shelter and subsistence to the displaced persons and later to rehabilitate them in close collaboration with the Union Government The makeshift arrange ments of improvised but well administered camps in various places in the State later progressed into peaceful townships and settlements for the uprooted humanity The big townships of Ulhasnagar Sardarnagar and 13 other townships and colonies were established The construction of 18,187 houses and 845 shops had been completed while that of 8 640 is in hand so far During 1953 54 8 000 houses are to be constructed in the two townships near Bombay City Every possible effort was and i being made to help and rehabili litate the displaced persons with vocational training in production centres and loans

The third formidable problem was the problem of food shortage It was then and continued to re main a world and a national problem Bombay State with its capital of a first rate industrial city and port which makes an important contribution to the country s financial, industrial and business life had been a deficit State An extensive famine and scarcity belt with recurrent crisis produced by erratic rains and bad seasons for agricultural operations aggravates the situation periodically The economy of the State was badly hit by the strain of the world war We passed through some difficult days We set up and strengthened the control organization with rationing the pattern of which was copied in other States Our job was to introduce a system of controls State intervention and even State trading to ensure that no citizen was denied the right to have the cereal food and necessaries of life at a reasonable price and the available resources were distributed equitably The black market and corrupt practice both in the adminis tration and in the commercial and business life had to be combated

Our constructive effort to improve production of food in the State has been su tained The expan sion of the agricultural department and service encouragement to grow more food compaign through estab lishement of various facilities and concessions improvement in water resources through major and minor irrigation works strengthening of the co operative organizations for the benefit of the rural population aid for *introducing improved methods in cultivation including latterly that of the Japanese system of paddy* cultivation have given good results and we look forward to achieving selfsufficiency at no distant date if the tempo of progress is maintained

With a population of Bombay State of 35 944 000 and an area of 1 11 434 sq miles more than half of which is under cultivation the Ministry had been called upon to make up a deficit of about a million tons of foodgrains The drive for improved production launched by Government recorded an increa e of 9 300 tons in 1947 48 1 09 000 tons in 1948 49 1 51 000 in 1949 50 1 82 300 tons in 1950 51 and 2 80 200 in 1951 52 A fairly comprehensive idea of the progress achieved in thi field can be gained from the fact that the target achieved out of the total 5 years target of 56 51 000 acres to be brought under improved seed was 40 56 635 acres in 1951 52 while the expected target for 1952 53 is 40 20 000 acres and that proposed for 1953 54 is 47 60 980 acres thus exceeding the original target The target achieved in 1951 52 of area irrigated from minor irrigation works out at 2 17 516 acres The 5 year target is 4 15 068 acres and 2 94 012 acres in 1952 53 while that proposed for 1953 54 is 3 93 802 acres

As large areas in Bombay State have been unfortunately hit very frequently by the irregular monsoon we had to mobilize all resources at our disposal and combine a programme of relief with construction of dams and bandharas as insurance against such scarcity Our effort had had the result of preventing death disease and starvation in the scarcity areas of the State Despite the hardship and suffering caused to lakhs of people the law and order situation remained satisfactory and when the Prime Minister personally went round the scarcity scarred areas during the latest disaster he was struck by the spirit of fortitude and will to conquer the calamity through the fullest measure of co-operation with Government

The police machine demanded reorganization during the period of transition from the foreigner s to our own people s rule Sustained efforts had to be made to purge the organization of corruption and inefficiency and to bring about a change in the attitude of the Police to the people The Bombay State and city police had had a tradition of efficiency in investigation of crime and other police functions but the foreign rulers had used the organization as a principal security arm directed against the nationalist elements It was Indianized of course and its morale was considerably strengthened through encouragement to officers and men who adjusted themselves to the changed conditions and for fresh tasks that awaited them They have been trained to regard themselves as servants and friends of the people We had to devise and initiate various measures for streamlining the police organization with a view to increasing its efficiency The necessary reorganization and improvement of equipment including the use of the wireless special training and use of uptodate methods in crime detection and prevention was and is being carried out The police force was strengthened with the raising of the home guards and village defence organizations that work in close liaison with the police

Housing shortage was yet another problem A large programme of construction of tenements for industrial workers and low income groups as well as for displaced persons was launched The Housing Board has so far constructed or reconditioned 7 050 tenements at a cost of Rs 2½ crores In addition 840 tenements have been in progress during 1952 53 while construction of 1 625 more tenements will start shortly A total of about 1 400 acres of land were acquired by Government for cooperative housing societies while loans of Rs 118 80 lakhs were sanctioned to 27 societies A special drive *for facilitating housing for* Harijans has been carried out and they are given various concessions and facilities for the purpose in addition to subventions to municipalities employing Harijan workers

These activities have contributed greatly towards easing the situation of acute housing shortage Government has also given liberal aid to cooperative housing societies and has also given help in the formation of a Corporation in which banks and insurance companies as well as cooperative societies are participating to accelerate the building activity

The merger of the former Indian States increased the dimensions and population of the State and the burden was thrown on the State of bringing the merged territory considerable part of which was backward in line with the State in matters of administration and public welfare and amenities including education

Alongside these immediate problems were the problems of economic reconstruction of the country Immediately on assuming office in 1946 we transformed what was known as the post war reconstruction plan into a plan of development schemes of nation building activities and reform The programme was launched immediately and many of the schemes have recorded satisfactory progress Then came our Five Year Plan The Bombay State development programme in the Five Year Plan involves an expenditure of Rs 146 crores and comprises *schemes of development of agriculture* veterinary *and animal husbandry* dairying and milk supply forests cooperation fisheries rural development irrigation projects power

projects cottage industries roads, road transport ports and harbours, education, medical facilities, public health, housing labour and labour welfare and amelioration of backward classes In comparison with the other eight A class States in India Bombay s development programme is the biggest, i e, costing Rs 146 31 crores out of the total cost of Rs 609 99 crores for all the nine States including Bombay The expenditure for all States is Rs 829 crores and Bombay s share works out at 17 5 per cent as against the percentage share, on the basis of population of a little over 10

The success achieved in the implementation of community development projects in our State has been widely acknowledged Both in the development areas and outside there are signs of great popular enthusiasm and voluntary effort which have been responsible for construction of roads, bandharas and other works of collective utility for the village community The community development project areas are generally located in backward areas Despite this the people are coming forward spontaneously to make their contribution in money and labour

The State Government undertook on October 2 1952 work on four full village development projects and one development block on which Bombay Government s share amounts to Rs 53 69 000 The nine national extension service blocks and six community development blocks were started in October 1953 In addition to these a large programme of local works has also been undertaken It is expected that, by the close of the year each district will be covered with one or more community development blocks or national extension service blocks and about one third of the area of the State will be covered with the national extension service blocks during the period of the Five Year Plan

The State sponsored a programme of Sarvodaya which is probably unique in the whole of the country A sum of Rs 120 lakhs has been allotted for it The programme is in operation practically in all the districts of the State and there are 29 centres established which are in charge of Sanchalaks or directors who are mostly non official including some who had been associated with the village uplift work of Mahatma Gandhi In fact the Gandhian ideology underlines the activities of the Sarvodaya Centres which are mainly located in backward areas The Sarvodaya workers in close collaboration with all departments of Government are engaged in activities that enable the villagers to live a new happy and prosperous life The results although they cannot be expected to be spectacular have considerably influenced the life of the people who had been subjected to neglect before and who have now been provided with opportunities of improving their standard of living and income and thus living a decent and prosperous life

The State s effort to improve and expand the medical and public health service and the success it has achieved are reflected in the reduction of death rate from 25 5 to 18 31 per 1,000 persons and the infant mortality rate from 160 83 to 128 66 per 1 000 persons since the popular Government assumed office

The State has been the pioneer in passing legislation that prescribed penalties for imposing disabilities on Harijans through refusal of free access to public wells places of entertainment, barbers shops, restaurants etc All types of education including the collegiate has been free for them and they receive special assistance with grants of scholarships free hostel accommodation etc Backward Classes also receive various kinds of financial and other assistance for purposes of agriculture, housing and rehabilitation and they are guaranteed a certain percentage of preference with relaxation of recruitment rules in Government service

The jail reforms introduced in the State follow the lines of humane treatment to prisoners and of a new approach of reform of criminals who find the jails as asylum and training centre equipping the prisoners with suitable training for settling down as honest and useful citizens Various experiments have been and continue to be carried out and they have yielded good results in reclaiming persons branded as

criminals but who are being given a new hope and a chance to live a decent life The irrational stigma of criminal tribes attached to certain backward communities have also been wiped off and the doors of fair deal and opportunity to the people classified as criminal tribes and formerly practically interned from birth to death have been opened We have also been trying to rehabilitate the members of the former criminal tribes

One of the most successful experiments undertaken by the State was that of nationalisation of road transport Government, in the beginning replaced private operators on main routes of motor transport and later formed a statutory corporation which operates on all important routes throughout the State This service has brought considerable relief to the travelling public as reasonable fares are charged and comfort and safety are guaranteed

Education has been given top priority The total annual expenditure on education increased from Rs 9 60 crores in 1946 47 to Rs 21 64 crores in 1949 50 from all sources The expenditure on education from the State revenues alone increased from Rs 4 42 crores in 1946 47 to Rs 12 39 crores in 1949 50 which is an increase of nearly 300% In the subsequent years, the expenditure amounted to Rs 12 crores and 14 crores or 20% and 25% respectively of the total expenditure of Government The expenditure on primary education alone increased from Rs 2 79 crores in 1946 47 to Rs 6 54 crores The State has launched an all out drive to liquidate illiteracy and have introduced free and compulsory education which would gradually cover the entire population in the villages Considerable progress has also been achieved in the expansion of training in higher education including technical education Other types of education including basic education have also been included in the ambitious programme

We have been making sustained efforts to reconstruct the rural economy and to make the people feel the glow of freedom by bringing prosperity and happiness to them It is an uphill task because reconstruction involves repairs to the economy damaged severely by the foreign rule of 150 years particularly at a time when wide repercussions of the world war were being felt and the shortages of all types and various difficulties obstructed the programme of nation building activities

So far as agricultural improvement and development are concerned a programme of expansion of the facilities for agricultural training including higher education imparted in the State agricultural colleges establishment of agricultural schools mainly for the benefit of agriculturists sons was put through Various facilities for research in agriculture and allied activities including live stock were provided and every possible State assistance was given to the agriculturists to enable them to improve their methods of cultivation and help them to meet their requirements of finance and materials A State wide organization was established for this purpose and the co operative organization particularly was expanded and strengthened Today the State Department extends every type of assistance to them

Among the measures adopted to bring relief to the rural population and help them to improve their socio economic condition must be included the reorganized machinery set up to reduce the burden of agriculturists indebtedness elimination of usury through the licensing of money lenders or Sahukars and regulation of their business provision for rural finance through the cooperative organization This organization has been developed phenomenally and today co operative societies have been established in over 60% of the villages in our State and over 20% of the rural population is benefiting from them

We have throughout attached greatest importance to healthy development of the co operative movement The State Co operative Department which supervises development of co operative organizations has expanded considerably We had had the situation carefully surveyed by expert committees which also suggested the lines of development financial structure and expansion programme

Our Co operative Department has a special village industries section This section helps villagers including backward classes to organize on co operative basis and form their co operative societies A considerable section of Adivasi labour exploited before by forest contractors has now been organized into cooperative societies of forest labourers These societies are given Government forest coupes at upset prices and also various concessions so that they can share the profits from extraction of timber and other forest operations In fact they are replacing the former forest contractors The number of primary producers societies in various village industries is 1 257 State sponsored training facilities have been established for the benefit of villagers and financial assistance is also given to them During 1946 52 loans of Rs 28 82,129 and subsidies of Rs 2,21 812 were granted both to co operative societies and individuals starting village industries In addition the operations of the societies are covered by financial guarantee by Government which involved Rs 1 20 64 505 In carrying out this programme we have secured the fullest co operation from the people themselves and advisory bodies in close liaison with the administration have been functioning throughout the State

To improve the economic and social conditions of agriculturists and to ensure full and efficient use of land for agriculture the Bombay Tenancy and Agricultural Lands Act was passed by the Government of Bombay in the year 1948 It aimed at removing the age old conflict between landlords and tenants by bringing security of tenure and enjoyment of just rights to the cultivator The provisions of the law have produced the effect of guaranteeing tenure to the cultivator and prevented his exploitation The proportion of rent is strictly regulated by the State Under the law large holdings and absentee landlordism are being eliminated in the interests of and for the benefit of, the tillers of the land The various special tenure have been abolished

Among the major achievements that have attracted the widest attention must be included the Aarey Milk Colony of the many milk development schemes introduced by us which supplies clean and pure milk to the people of Greater Bombay The colony houses cattle stabled before in the city and constitutes an interesting and certainly successful experiment of the State combining private enterprise with State assistance because the owners of stables in the colony are provided with all modern amenities and service of veterinary attendence and care at reasonable cost Such schemes of milk distribution under State control are being established in other cities in the State

The central dairy at Aarey, in its 26 large dairy farm units houses 13 000 head of cattle Equipped with all modern installations including a pasteurization and bottling plant it handles every day 3 200 maunds of milk which is processed and distributed daily in 3 50 000 bottles for use in Greater Bombay Seven hundred maunds of toned milk which i pasteurised at the plant i used by city hospitals and by the poorer section of the population which cannot afford to consume whole milk The various works under the milk scheme involved an expenditure of Rs 3 33 01 797 upto June 1952 In addition, a number of schemes have been introduced of cattle salvage cooperative marketing dairy development with grant of loans to large scale dairy farmers etc

Dairy development is linked with the activities of the cattle improvement with veterinary services including research in cattle diseases and active help to breeders and farmers for improving the stock Veterinary aid is extended to all agriculturists through Veterinary dispensaries and service hospitals and cattle taken to these institutions are treated completely free

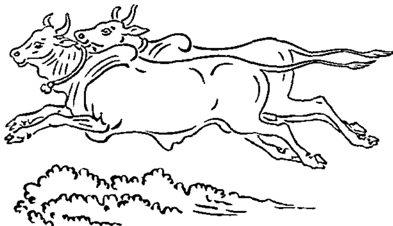
In the sphere of labour welfare pioneering efforts have been made by enacting laws that strengthened the trade union organization and prevented strikes and lockouts that used to take place following disputes between employers and labour The machinery for arbitration, conciliation and adjudication which has

been set up has been working satisfactorily State intervention also covers the sphere of standardization of wages in various industries, strict enforcement of the factory and other laws for the protection of labour The State at the same time has secured the cooperation of employers and gets them to sit at the same conference table with labour for evolving general policies in the interests of production Our policy has proved successful in stabilizing productive activity and preventing a mutually harmful class conflict

We have endeavoured to implement the directive principles laid down in our Constitution Accordingly, we introduced Prohibition in Bombay State, although its introduction involved a loss of substantial revenue which has however been more than made up by raising additional revenue through healthier taxation The programme of prohibition was introduced gradually till total prohibition finally came into operation from 1950 There is clear evidence to establish that large masses of people particularly in rural and backward areas, are saving the money they used to spend on drink and drugs and their standard of life and income have gone up while the money saved is being invested in better care of families education of children investment in jewellery property etc

We have implemented yet another Directive Principle by effecting separation of judicial functions from the executive ones

It is not possible for me in this short article to recount even briefly the programme of reconstructive work we have taken up I can best conclude by saying that no effort has been lacking on our part in the discharge of the sacred duty imposed upon us and to live up to the trust reposed in us by the electorate We have to battle with great difficulties and we cannot claim that we have not made mistakes or have satisfied all We take note of what our critics say and try to improve our capacity for work Seven years is not a long period in the history of development of the country We are not and never have been self complacent We have tried to do our best and the effort we put in has borne concrete fruits in many cases



INDIA AFTER INDEPENDENCE

THE INDIAN ECONOMY 1947-48 TO 1954 55

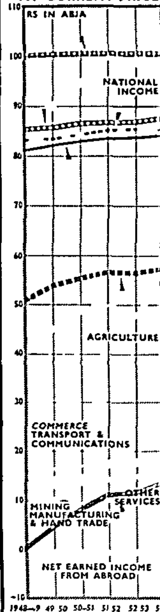
CAN an underdeveloped economy raise itself by its own boot straps? Current economic thinking has tended to be markedly pessimistic on this issue, it has tended to assume that without foreign help the gap between advanced and backward economies must invariably widen This is an error It seems from a view derived largely from classical economic theory that there is a vicious circle which tends to keep backward economies in a *state of relative under development There is much that is* plausible in such a view which seems to have added support from at least a hundred years of economic history in South and South East Asia The fact that Japan broke through the vicious circle over fifty years ago has tended to pass unnoticed in a large section of current economic literature Where it has been noticed the fact that in Japan the performance of the economy was greatly influenced by an expansionist imperialist policy has tended to suggest that a similar result cannot be attained in the short period by an economy which has no expansionist forces, so to speak outside *itself*

This makes the behaviour of the Indian economy between the years 1952 and 1955 one of the most interesting studies in the whole field of current economics Between these years India raised herself almost completely by her own boot straps and in at least one year, 1953 54 her under developed economy exhibited possibly the highest rate of economic progress in the world

Official figures do not do full justice to the dynamic quality of recent Indian economic progress For one thing they stop at the end of the official year 1953 54—that is March 31 1954 Indian industrial production reached its peak in April 1955 and the spectacular rise in industrial production in the calendar year 1954 which was over 25 per cent in twelve months is not reflected in the latest official national *income figures* Again the choice of the year 1948 49 as a base year for measuring national

NATIONAL INCOME OF INDIA BY SECTORS

AT CURRENT PRICES



NATIONAL INCOME

	Current Prices	1948-49 Prices
1948-49	86.5	86.5
1949-50	90.1	88.2
1950-51	95.3	88.5
1951-52	99.9	91.6
1952-53	98.6	95.2
1953-54	1[illegible]0	9[illegible]5

FROM AGRICULTURE ANIMAL HUSBANDRY ETC.

	Current Prices	1948-49 Prices
1948-49	42.5	4[illegible]5
1949-50	44.9	43.6
1950-51	43.9	43.4
1951-52	49.9	44.4
1952-53	4[illegible]9	46.0
1953-54	51.0	49.9

FROM COMMERCE, TRANSPORT AND COMMUNICATIONS

	Current Prices	1948-49 Prices
1948-49	16.0	16.0
1949-50	16.6	16.4
1950-51	16.9	16.6
1951-52	17.9	17.3
1952-53	17.8	17.9
1953-54	19.0	19.6

FROM MINING MANUFACTURING AND HAND TRADE

	Current Prices	1948-49 Prices
1948-49	14.8	14.8
1949-50	15.0	14.6
1950-51	15.3	14.8
1951-52	17.3	15.8
1952-53	17.6	16.4
1953-54	19.0	16.7

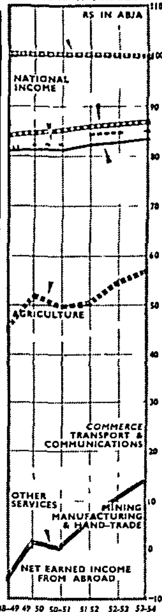
FROM OTHER SERVICES

	Current Prices	1948-49 Prices
1948-49	13.4	13.4
1949-50	13.8	13.8
1950-51	14.4	13.9
1951-52	15.0	14.3
1952-53	15.4	15.0
1953-54	16.1	15.4

NET EARNED INCOME FROM ABROAD

	Current Prices	1948-49 Prices
1948-49	-0.2	-0.2
1949-50	-0.2	-0.2
1950-51	-0.2	-0.2
1951-52	-0.2	-0.2
1952-53	-0.1	-0.1
1953-54	-0.1	-0.1

AT 1948-49 PRICES



income at constant prices has tended for abstruse statistical reasons to depress the rate of progress in at least two years included in the official series It is almost certain that for these reasons the official national income figures understate India s economic achievements in the years after 1952

The official figures may nevertheless be accepted as a starting point Here they are

TABLE I

NATIONAL INCOME OF THE INDIAN UNION, 1948-49 TO 1953 54

(In billions of Indian rupees—one billion equals one thousand million)

Year	*At Current prices*	*At Constant* 1948 49 *prices*
1948 49	86 5	86 5
1949 50	90 1	88 2
1950 51	95 3	88 5
1951 52	99 9	91 6
1952 53	98 6	95 2
1953 54	106 0	99 5

These figures represent a rise of 15 per cent in real income in five years or an average rise of nearly 3 per cent per year So to state the result however, is to do violence to the last three years Between 1948 49 and 1950 51 the rate of development was just 2 3 per cent in two years or about 1 per cent per year Between 1950 51 and 1953 54 it has been 12 4 per cent In other words the rate of economic progress in the last three years would appear to be nearly four times as much as in the previous two The average rate of progress was about 4 1 per cent per year

Scholars in many countries of the world are now examining the performance of the Indian economy over the last eight years to try to understand how this sudden change in the pattern of development has been initiated It is difficult at this stage to give an answer to the question as to how far the existing trends are intrinsic in the economy The period of dynamism has been too short for any final opinion to be formed What can however be stated is that the chances are that present rates of advance will if anything be exceeded in the short period

The reason for this optimism is to be found in three main co ordinates These are the rate of capital formation the ratio of investment to income generated and finally the trends of imports and exports which govern a country s foreign exchange payments All these co-ordinates are running so well at the present time that one may be justified in the belief that no setback is immediately forthcoming

The Rate of Capital Formation:

Official figures placed before Parliament in July 1955 give Indian domestic investment and foreign lending as in the table II below

Table II

INDIAN DOMESTIC INVESTMENT AND FOREIGN LENDING

(In billions of rupees)

Year	*Net Domestic Capital Formation*	*Net Lending to the rest of the world*	*Net Domestic Capital Formation plus net Lending Abroad*
1948 49	446	—239	207
1949 50	524	— 50	274
1950 51	589	56	645
1951 52	672	—174	498
1952 53	659	74	733
1953 54	719	66	785

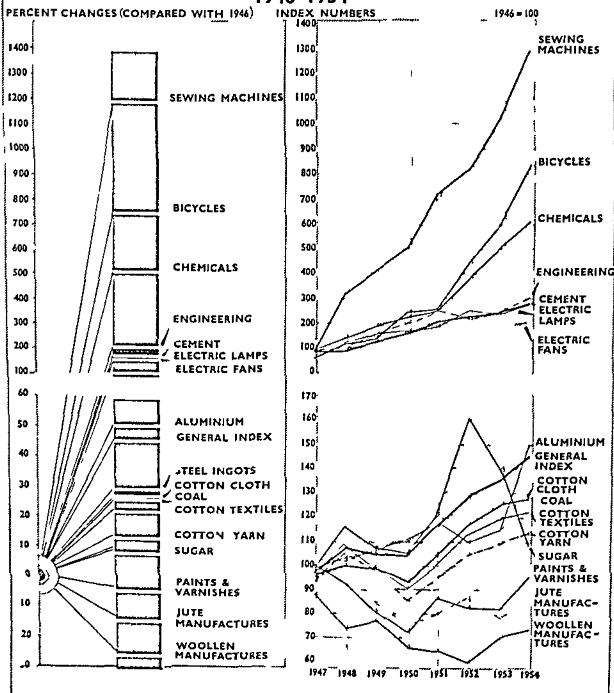
It will be seen that net domestic capital formation inclusive of net lending has more than trebled itself in five years The trend has been continually upward except for one year, 1951 52 where there was a marked setback largely because of the foreign account It will be remembered that that was a year of large food imports—a contingency not likely to be repeated in any coming year There is evidence that the marginal rate of capital formation in India is as high as 15 per cent against something between 7 and 8 per cent as an average figure for 1953 54 This implies that on every increase of output India is likely to save twice as much in percentage terms as she saves on the average at present In other words the rate of saving might conceivably rise from about 7 per cent to nearly 10 per cent if income should rise from about Rs 11 000 crores at present prices to Rs 14 000 crores in five years from now

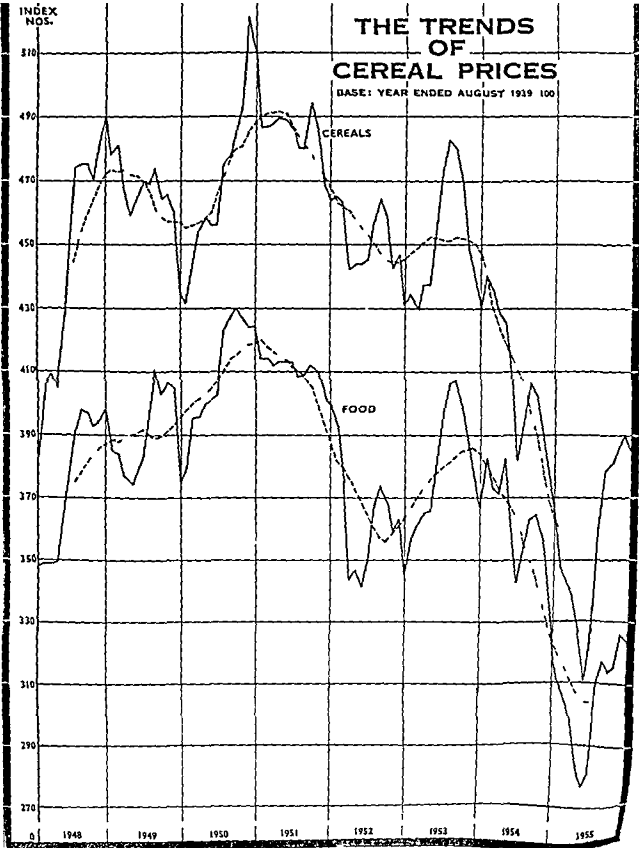
The Ratio

Secondly on the problem of the volume of investment which is required to generate a given level of income the last five years have provided evidence to show that the belief expressed in the First Five Year Plan that a ratio of 3 to 1 would obtain was unduly pessimistic The experience of the last five years suggests that the ratio in India might be much nearer to 1 5 to 1 than 3 to 1 which was suggested at the time the Plan was framed There is an indication that even the figure of 1 93 to 1 suggested in the Draft Plan Frame is an overestimate There is certainly ground for believing that with a monetary expenditure of about Rs 5 000 crores the income targets of the Second Five Year Plan which is to provide for an increase of 25 per cent over National Income for 1955 56 might be exceeded

The Balance of Payments:

Finally there is the question of the balance of payments The figures in table II above will show that while there have been serious deficits in the past the position has now stabilised itself The figures for 1954 55 not included in the table show no deterioration in the payments position in that year compared with the previous years How far will this good fortune depend on our future import policy ? If we decide as is now proposed to import at least a million tons of steel per year in addition to what we are importing at the present time the chances of maintaining a favourable balance will be small This however does not imply that the gap will necessarily be large There is no need for alarm The experience of the Indian economy


THE SPECTRUM OF INDUSTRIAL PRODUCTION
1946-1954
PERCENT CHANGES (COMPARED WITH 1946)
INDEX NUMBERS
1946 = 100
SEWING MACHINES
BICYCLES
CHEMICALS
ENGINEERING
CEMENT
ELECTRIC LAMPS
ELECTRIC FANS
ALUMINIUM
GENERAL INDEX
STEEL INGOTS
COTTON CLOTH
COAL
COTTON TEXTILES
COTTON YARN
SUGAR
PAINTS & VARNISHES
JUTE MANUFACTURES
WOOLLEN MANUFACTURES
1947 1948 1949 1950 1951 1952 1953 1954



THE TRENDS OF CEREAL PRICES
BASE: YEAR ENDED AUGUST 1939 100
INDEX NOS.
510
490
470
450
430
410
390
370
350
330
310
290
270
0
CEREALS
FOOD
1948
1949
1950
1951
1952
1953
1954
1955

in the last few years suggests no complacency but a feeling of sturdy confidence, the expression of a marked psychological, as well as an impersonal economic buoyancy

The character of the economic changes which have produced this buoyancy is described in the sections which follow

AGRICULTURAL PROGRESS IN THE INDIAN UNION

1 Food grains

The Indian Union was deficit in cereals when independence came in August, 1947 Only 69 per cent of the irrigated area 65 per cent of the wheat and 68 per cent of the rice area fell to India s share as against 82 per cent of the pre Partition population of the country which remained in the Indian Union In 1947 India had only 198 million acres under cultivation for a population of more than 320 million Food shortage in physical volume even at the low subsistence level prevalent in 1947 amounted to nearly 4 million tons Food imports cost the Union a significant amount of foreign exchange every year In the table below are set out the figures for the value of food grains imports

Year	*Food Imports (crores of Rs)*
1948 49	73 2
1949 50	99 5
1950 51	80 4
1951 52	228 1
1952 53	153 1
1953 54	63 6
1954 55	68 0

From 1948 49 to 1951 52 India s food imports went on rising steadily Our difficulties were accentuated by unfavourable weather which continued till 1951 52 Shortage of food brought nearly 40 per cent of the population under rationing Naturally the atmosphere at the end of 1952 when the final version of the First Five Year Plan was released was gloomy Even the Bernstein Report which was presented to the Government of India by a mission of the International Monetary Fund which visited this country during January to March 1953 said While it is hoped that by the end of the plan the need to import food grains will have been eliminated this will probably not be possible without some control over consumption Similar sentiments were expressed in the First Five Year Plan In 1952 53 the agricultural situation in the country took a turn for the better Food production went up from 54 million tons in 1949 50 to 60 million tons in 1952 53 This increase was accompanied by a crash in agricultural prices and then an era of comparative easiness in the food market ensued Bold policies pursued by C Rajagopalachari in Madras and the late Rafi Ahmed Kidwai at the Centre brought about decontrol of food grains in vast areas of this country while the timid amongst the economists (and even the foreigners) were very much sceptic about India s ability to discard rationing By 1953 54 the picture had altered altogether A record acreage of 261 million was sown in 1953 54 with the result that a tremendous uplift in agricultural production was recorded The gloom which prevailed till the end of 1952 vanished and it suddenly dawned upon the governments both at the Centre and the States that there was no need of continuing control on food distribution

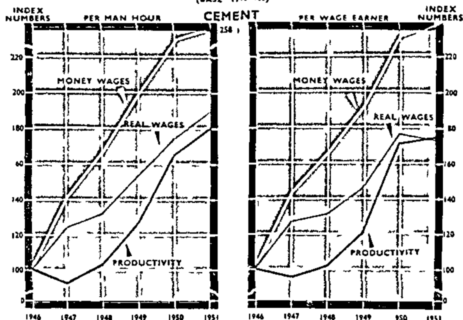
All these years the Government of India has been steadily pursuing a policy of investment in agriculture There were permanent schemes of construction of wells tanks channels and small dams and there were other measures like the production and distribution of improved seeds the application of fertilizers and manures and protection of plants with insecticides All these efforts had greatly raised as it were the level of Indian agricultural output over the one which prevailed in the preceding five year cycle The fact is too often forgotten that all these measures must have gone to raise the floor of agricultural production too much tends to be attributed to favourable years

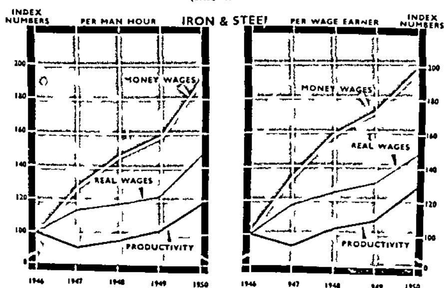
2 **Plantation Crops:**

The area under plantation crops in the Indian Union is hardly 1 5 million acres as against 261 million acres under food but the capacity of this industry for creating wealth for this country is great The major portion of this wealth is earned from foreign countries As the table below will show the total export earnings from the plantation crops have more than doubled since independence whereas in 1947 48 our foreign exchange earnings from this industry were 17 per cent of our total exports our earnings in 1954 55 were 32 per cent of the total exports The importance of plantation crops as earners of foreign exchange has increased significantly and the plantation crops hold out great hopes for the industrialisation of this country

Year	*Plantation export earnings (Rs crores)*	*Total export earnings (Rs crores)*	*Plantation earnings as percentage of total earnings*
1947 48	70 25	395 30	17 0
1948-49	82 50	421 00	19 6
1949 50	104 35	472 01	21 8
1950 51	125 25	579 00	20 1
1951 52	141 67	701 93	20 0
1952 53	120 60	551 04	21 8
1953 54	137 80	515 70	26 7
1954 55	183 00	572 30	32 0

This significant contribution of the plantation crops to India s export earnings has been achieved with very little expansion in total acreage It might also be stated that while the plantation crops have given to India foreign exchange of the order of nearly Rs 1 000 crores in these years they were also making substantial contribution to the Central budget The receipts of tea export duty in the year 1954 55 contributed Rs 30 crores to the national exchequer This was it is true a miracle year for tea which is not likely to be repeated Two conclusions can be drawn in regard to the government policy in the handling of the plantation industries While they have not succeeded in extending the acreage which in any case is restricted under international agreements these policies have not hindered a significant rise in production and a great receipt in foreign earnings They have also contributed substantially to an expansion of the domestic market In tea in particular there is evidence that the internal market has risen by about 50 per cent in the last seven years The achievements so far as plantation crops are concerned are to be found in the many sided benefits they have conferred on the economy as a whole


INDICES OF PRODUCTIVITY MONEY WAGES AND REAL WAGES
(BASE 1946 100)
INDEX NUMBERS
PER MAN HOUR
CEMENT
PER WAGE EARNER
INDEX NUMBERS
MONEY WAGES
REAL WAGES
PRODUCTIVITY
1946
1947
1948
1949
1950
1951


INDICES OF PRODUCTIVITY MONEY WAGES AND REAL WAGES
(BASE 1946 100)
INDEX NUMBERS
PER MAN HOUR
IRON & STEEL
PER WAGE EARNER
INDEX NUMBERS
MONEY WAGES
REAL WAGES
PRODUCTIVITY
1946
1947
1948
1949
1950

SELECTED ECONOMIC INDICATORS

National Income & Capital formation (Figures for financial years)	Unit	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54
National income at current prices	in Rs Abja	86.5	90.1	95.3	99.9	98.6	106.0
National income at 1948-49 Prices	in Rs Abja	86.5	88.2	88.5	91.6	95.2	99.5
Net domestic capital formation	in crores of Rs	416	5[illegible]4	583	67[illegible]	659	713
Net domestic capital formation as percentage of national income		5	5.8	6.2	6.[illegible]	6.7	6.8

Agricultural production: (Figures for Agricultural year ending in June)		1947-48	1948-49	1949-50	1950-51	1951-52	1952-53	1953-54	1954-55
Eastern Economist Indices of Agricultural Production	1936-37 to 1938-39 = 100	100	[illegible]	100	94	[illegible]	105	1[illegible]0	121
Rice Production in India	Million tons	21.25	22.60	23.17	20.25	[illegible]0.96	22.54	27.6	24.21
Wheat production in India	Million tons	5.57	5.65	6.29	6.36	6.09	7.38	7.9	8.54
Tobacco production in India	000 tons	234	255	[illegible]64	257	[illegible]06	241	256	238
Tea production in India*	in million lbs	5[illegible]1.6	568.8	585.6	613.7	6[illegible]8.8	614.4	608.4	642.0
Cotton production in India	Lakh bales	21.88	17.67	26.28	29.10	31.33	31.94	39.35	42.98
Jute production in India	Lakh bales	20.73	30.89	32.83	46.8	45.92	31.28	31.53	

Industrial production & Power (Figures for Calendar years)		1947	1948	1949	1950	1951	1952	1953	1954	1955
Interim Index of Industrial Production—General Index	Base 1946 = 100	97.2	108.4	105.7	105.0	117.2	128.9	135.3	146.6	158.0
Coal raisings	million tons	30.0	29.8	31.5	32.0	34.3	36.2	35.8	36.8	38.[illegible]
Sugar production (sugar year)	in lakh tons	9.0	10.8	10.0	9.8	11.1	14.9	12.9	10.1	15.8
Cotton yarn production	in million lbs	1296	145[illegible]	1330	1157	1295	1447	1504	1565	1603
Cotton cloth production	in million yards	3 762	4 442	3 805	3 614	4 199	4 594	4 906	5 062	5 0[illegible]0
Jute manufactures	in thousand tons	1 051	1 086	923	836	875	952	869	928	1 015
Paper & Paper boards	in thousand cwts	*1 662*	*1 958*	*2 0[illegible]4*	*2 178*	*2 633*	*2 [illegible]32*	*2 [illegible]96*	*3 106*	*3 060*
Cement production	in thousand tons	1 447	1 553	2 102	2 612	3 076	3 538	3 780	4 408	4 259
Finished steel	in thousand tons	833	857	930	1 004	1 076	1 103	1 0[illegible]4	1 243	1 280
Sewing machines	in thousands (nos)	5.9	20.0	25.0	30.9	44.5	50.0	62.4	80.2	93.0
Bicycles	in thousand (nos)	31.9	55.5	64.4	103	114.3	197.0	64	37[illegible].4	443.7
Electric fans	in thousand (nos)	159.6	180.0	178.8	193.2	212.4	195.6	193.2	258.8	300.2
Electric lamps	in lakhs (nos)	76.2	92.5	136.4	143.0	155.2	212.8	197.6	230.8	243.2
Diesel engines	in thousands (nos)	0.7	1.0	2.1	4.6	7.2	4.2	3.7	8.7	10.2
*Electricity Generated	million kwt	4073	4576	4309	5107	5858	6120	6628	7440	82[illegible]0

* *Estimated*

3 Fibres

Partition greatly disturbed the cotton economy of the country In 1947 48 we had to import 13 47 lakh bales of raw cotton The terrible shortage of food grains which followed close upon the heels of Partition obliged the country to divert a part of the acreage under cotton to food crops and this further aggravated the already difficult cotton situation

The indigenous producers however met the challenge, and within a short period of eight years or rather since 1952 53 when restrictions on acreage under cotton were abolished, the pro duction of raw cotton in this country doubled itself In 1948 49 the production was 17 67 lakh bales while the provisional figures for 1954 55 indicate an yield of 42 98 lakh bales Indeed in so far as medium and short staple cotton are concerned India is fully self sufficient In long staple variety however we are badly deficient and this imposes a minimum strain of about Rs 40 crores per annum on our hard earned foreign exchange resources There is however no possibility of growing all the varieties of long staple cotton in our own country in the near future though we are told that cotton of $1\frac{3}{16}$ to $1\frac{1}{4}$ staple can be grown inside the country In 1947 48 Indian production of long staple cotton (7/8 and above) stood at 3 31 lakh bales while this figure jumped to 13 65 lakh bales in 1953 54

Jute

In 1948 our production of raw jute was nearly 2 million bales Since all the mills were in India while a high percentage of jute consumed by the Indian mills came from Pakistan an acute shortage was felt and our jute industry was virtually at the mercy of Pakistan Immediate steps were taken to enhance our jute output with the result that in 1951 and 1952 our production ruled near about 4 6 million bales an increase of more than 100 per cent In 1953 and 1954 however there was a setback to jute output The fall was nearly 30 per cent from the level of 1951 and 1952 This fall was a reaction to the decline of the post Korean boom and the steep fall in jute prices Production at 3 1 million bales in 1954 was still 50 per cent above our 1948 output

The Revolution in Agriculture

The broad conclusion of this d scussion is that India s food production has risen to a level from where there is no fear of going back to 1950 51 level Food imports have already declined significantly making it possible for this country to spend valuable foreign exchange on imports of machinery A new assessment of our agricultural capacity is slowly winning recognition Perhaps this is best set out in terms of the first detailed statement of the elements of this change Without any H rculean effort , says ' The Eastern Economist the floor of Indian agriculture has been rising at a rate between 3 and $3\frac{1}{2}$ per cent since 1952

The argument that the floor of Indian agriculture has risen by over 3 per cent per year in the last few years can be presented in many ways For this purpose a very long period study is not relevent A long cycle which may be fifteen years containing three short cycles would be suffi ient to provide a norm for fluctuations due to the monsoons If the period 1936 to 1952 is taken as a cycle including the three short period cycles of five years each one may conclude on the basis of The Eastern Economi t Index of Agricultural Production that th fluctuation between the best and worst years of a cycle of fifteen years is about 12 per cent If the last short period cycle of five years that is 1948 49 to 1954 55 is then taken and discount of 12 per cent for monsoon variations made there is a net rise of about 15 per cent in five years as a residue This might be interpreted as an average rise of a floor of 3 per cent per year Seeing that until 1952 53 the rise was of significantly lower order one might claim that the floor must have risen after 1952 at an appreciably higher rate possibly over 4 per cent Another way of presenting similar argument would be to place 1954 55 in its appropriate seasonal bracket against 1953 54 If we assume that the year 1954 55 stands midway between a normal year and the miraculous year 1953 54 this would imply that other things

Foreign Trade & Balances:

(figures for Calendar years)		1947	1948	1949	1950	1951	1952	1953	1954
Exports including re-exports C I F	Rs crores	403 19	422 82	485 70	586 88	715 56	556 78	523 20	577 6
Imports F O B		398 62	518 00	560 51	565 46	862 85	632 95	549 12	610 60
Balance of trade		+4 57	—95 18	—75 31	+21 42	-147 29	—76 17	—25 92	—32 84
Balance of payments			—8 9	— 0 3	—27 1	—57 4	+1 7	+53 7	+3 7

Currency & Finance:

(Figures for financial years)		1947 48	1948-49	1949-50	1950 51	1951 52	1952 53	1953 54	1954 55
Demand deposits of scheduled banks	Rs crores	706 7	674 6	597 8	599 1	93 7	546 2	526 7	559 6
Time deposits of scheduled banks		343 9	303 9	272 6	278 5	2 0 8	309 3	328 3	351 9
Total deposits of scheduled banks		1050 5	978 4	8 0 4	877 6	884 6	855 5	855 0	911 5
Notes in circulation		1227 8	1231 8	11 8 9	1163 7	1189 8	1114 8	1134 0	1196 2
Money supply		2236 7	—	1865 3	2005 9	18 8 9	1 84 6	1856 6	1980 9
Bills discounted by scheduled banks		16 8	16 4	15 4	11 9	22 8	38 5	51 4	84 7
Advances made by scheduled banks		427 5	424 9	4 6 7	447 0	523 6	461 6	442 8	468 4

Prices & Wages

(Figures for calender years)	1947	1948	1949	1950	1951	1952	1953	1954
All India working class cost of living Index numbers 1944=100	120	134	138	138	144	141	145	138
All India wholesale price Index numbers Year ended August 1939=100	308 2	376 2	385 4	409 7	434 6	380 6	39 5	377 4
Variable dividend Industrial Securities Price Index numbers Base 1948=100	138	100	76	78	85	72	69	82
Index numbers of real earnings of Industrial Workers in India Base 1944 100	104 4	112 2	122 0	119 9	122 6	135 3	146 4	—
Index numbers of profits in Industries Base 1939=100	191 6	259 9	181 5	246 6	310 5	190 6	256 9	—

*Includes Hali Sicca currency since 1950 51

being equal production in 1954 55 would have run about 3 per cent below that of 1953 54 In point of fact it has run 1 per cent above 1953 54 In other words, the floor between 1953 54 and 1954 55 was rising at about 4 per cent per year

A third method of estimating movements in the floor of Indian *agriculture* is a detailed evaluation of the dynamic elements which have gone into Indian agriculture in recent years First there is the Japanese method of rice cultivation which in certain official quarters is assumed in the year 1954 55 to have contributed 900 000 tons of additional rice over an area of 1 2 million acres Similarly there is an estimate of the character of output following on additional fertilizers Here one might assume an increase of output of possibly 1 million tons though this is not available on food crops alone It might be mentioned that recent estimates of the character of chemical fertilizer increases in Indian agriculture suggest that over the long period, say the next twentyfive years fertilizers might be the most dynamic component of increased output In one estimate of expected increases by 1980 fertilizers will provide half of the increase and irrigation and all other improvements the other half between them There is moreover indication that at the rate at which the use of fertilizers is now rising the floor of Indian agriculture will rise at a higher rate than it has done in the last three years Again if account is taken of minor irrigation works and the enhanced investment which is going into private well construction one might conceivably assume that increments of output from wells will over the next few years run at 50 per cent above their current contribution All the dynamic components taken together appear to have already contributed 60 per cent to the current output

These estimates of the monsoon and non monsoon factors suggest that there is strong evidence for the theory that Indian agriculture after 1952 has struck out on an entirely new path It is not only that the floor which has over many decades been rising at a rate of less than 1 per cent has suddenly moved up between 3 and 3½ per cent the point is also that the rate of growth is being accelerated The floor of Indian agriculture cannot under ordinary circumstances in the next five years rise at a rate of less than 4 per cent per annum

INDUSTRIAL POLICY 1948 TO 1955

In 1948 the Government of India made a statement on Industrial Policy which theoretically has held the field until the present time This policy was designed to keep certain important industries, namely munitions atomic energy railroad transport and in an emergency any industry vital to national defence in the public sector leaving the private sector free in other fields In point of fact the actual working of the policy has admitted a large degree of freedom to the public sector industries and comparatively less freedom at least until 1952 to the private ector ones The principles on which interference was designed were believed to be related to planning and the necessity of maintaining orderly development when supply and demand were out of relation with one another

It is difficult to view the record as a whole as a fulfilment of the Industrial Policy Statement and in point of fact it can be maintained that Indian policy has not been based on any major principles but has been pragmatic suited to the circumstances in each of the last seven years It can also be argued with much evidence that since 1952 it has been markedly successful

The official Interim Index of industrial production for every month from January 1949 to the latest available figure for June 1955 is set out in the table below Since 1951 there has been no month in any year in which the Interim Index has fallen below the corresponding figure for the preceding year In other words industrial production in India has been steadily and uniformly rising (Till 1950 industrial output had been maintained at a level five to eight per cent higher than the 1946 base year) During the five year period 1950 54 industrial production advanced by more than 40 per cent *i e* at a rate of more than 8 per cent per year An all time peak of 167 2 was registered in April 1955

Shipping & Transport :

Financial years		1948	1949	1950	1951	1952	1953	1954
Shipping entered with cargoes	Million tons	12 0*	16 6	15 7	18 9	13 3	19 8	13 8
Shipping cleared		11 4*	14 2	15 1	16 9	18 8	21 1	20 2
Rly wagons loaded	No in Million	5 5	6 [illegible]	6 3	6 8	[illegible] 0	6 8	7
Rly tonnage lifted	Net ton miles in 000 Millions	2[illegible] 3	25 0	26 [illegible]	28 0	29 5	29 4	
National shipping capacity	in 000 g r t	333	36[illegible]	367	384	4[illegible]3	435	473

Labour & Employment :

(Figures for calender years)

	1948	1949	1950	1951	1952	1953	1954
Registrations with Employment Exchanges Nos 000 at the end of the period	339	[illegible]4	331	379	437	522	610
Placings through Employment Exchanges Nos 000	60	57	3[illegible]1	417	358	185	162
Total employment in Factories subject to Factories Act average daily number 000	360	434	2504	2537	2567	[illegible]8	2432†
Man-days lost due to Industrial disputes Nos 000	837	6601	1 807	3813	3337	3383	3373
Number of stoppages caused due to industrial disputes Nos 000	1 3	0 9	0 8	1 1	1 0	0 8	1 1

* April to December
*July 1955
†First half
§Estimated



The pattern of the rise is illustrated in the diagram on page 184 which presents the 'spectrum' of Indian industrial production

These figures impressive enough as they are by themselves must be considered a prelude to the greater developments in industrialisation which are now being planned India s First Five Year Plan was predominantly a Plan for agriculture and communications Its industrial opening was designed largely for the utilisation of existing capacity a task which has been fulfilled with a larger measure of success than could possibly have been anticipated In the Second Five Year Plan which is to commence from April 1956 the position is different Industry moves into a central place in the Plan with heavy industry, particularly *in steel and cement* being developed at *what in Indian conditions* must be considered phenomenal rates Again t current production of finished steel of about 1 2 million tons the target for 1961 will be 4 5 million *tons Similarly for cement while current production is less than 5 million tons the planned production* for 1961 is 10 million tons The significance of these figures is great not only for industrial production but for many *items of welfare which industrial production connotes Housing for example held back both for* shortages of steel and cement over many years will be allowed significant free play

Hitherto the impulses in agriculture and industry have been treated separately This is apt to create *the impression that they are operating under separate and not under inter related forces This is not of* course the case The great strength of both sectors arises from the fact that not only are their internal pro*ductivities increasing but also there are opportunities that arise from the demand which the other sector places* upon it Thus there has been a significant increase in the demand in urban areas for foodgrains and for raw cotton and jute by industry Conversely there has been considerable demand for cloth from rural areas Indian agriculture and Indian industry are supporting and sustaining each other

Again in respect of raw cotton the volume of additional cotton bought by the mills is shown in the *table below If one assumes that this cotton would otherwise have had to be imported, the total saving of the* industry would be of the order of Rs 80 crores

Cotton Consumption by Mills in '000 Bales

	Indian	*Foreign*	*Total*
1950	2 568	1 152	3 720
1951	2 496	1 152	3 648
1952	2 940	1 140	4 080
1953	3 612	876	4 488
1954	3 948	720	4 668

Per contra since 1951 rural consumers have benefited in two ways from demand or supplie of Indian industries So far as rural producers and Indian consumers are concerned in the demand for raw cotton jute and sugarcane there have been marked fluctuations Nevertheless it may be said that the demand for all raw materials in industry has been lifted to a substantially higher plane At the same time the prices of manufac tured goods have for the most part declined steeply since their peak in 1951 The case of cloth is a specific illustration of the benefit that has been returned to the agriculturists by the supply of added quantities of cot ton and at a low price Practically the whole of the reduction in the price over the period had been trans lated into the price of cloth

INDUSTRIAL PRODUCTION

(Monthly Average of Calendar Months)

ITEM	UNITS	Latest July 55	A Year Ago July 54	1948	1951	1952	1953	1954
Coal	Th. Tons	2 956	2 966	2 485	2 869	3 010	2 987	3 064
Vegetable Oil Products	Tons	[illegible]*	16 747	10 808	14 360	15 301	15 971	13 729
Cigarettes	Lakhs	18 [illegible] 0*	18 431	18 187	17 874	16 [illegible]66	15 353	16 523
Cotton Yarn	Lakhs lbs	1 440	1 357	1 [illegible]06	1 087	1 208	1 255	1 301
Cotton Cloth	Lakhs Yds	4 460	4 335	3 [illegible]39	3 307	3 832	4 065	4 165
Jute	Th. tons	84 1	80 7	90 7	72 [illegible]	[illegible]3 3	[illegible] 4	77 3
Footwear (Leather)	Th. Pairs	87 2	[illegible] 3	66 8	303 4	280 6	273 0	272 3
Footwear (Rubber)	Lakhs Pairs	6 4	34 3	15 6	13	19 0	0 0	6 0
Plywood	Th. Sq. Ft.	[illegible] 114	5 803	4 478	5 904	7 545	[illegible] 100	6 481
Paper and Paper Boards	Tons	15 081*	13 350	8 159	10 393	11 453	11 642	12 944
Tanned Hides	Ths.	173 0	145 7	[illegible]53 8	215 3	177 4	166 6	169 3
Automobile Tyres		76 3	68 1	64 2	72 5	60 1	[illegible]4 0	63 4
Cycle Tyres		484 8	443 3	80 8	328 4	313 1	387 1	435 5
Automobile Tubes		71 7	64 7	62 5	68 4	55 1	54 9	62 4
Automobiles	Nos	1 865	[illegible]96		1 856	1 274	1 160	1 [illegible]05
Bicycles		42 810*	31 546	4 621	9 573	16 413	[illegible] 014	31 030
Sulphuric Acid	Tons	10 [illegible]93*	13 349	6 667	8 911	8 007	[illegible]091	12 573
Caustic Soda		2 806	2 337	3[illegible]5	1 227	1 422	1 909	2 442
Soda Ash		7 103	3 132	2 423	3 961	3 694	4 733	4 024
Ammonium Sulphate		23 797*	6 691	2 934	4 392	18 359	26 635	28 352
Paints and Varnishes		2 671	3 102	2 977	2 [illegible]30	2 681	[illegible] 671	3 068
Matches	Th. Cases	50 1	44 6	44 4	48 [illegible]	51 6	51 5	44 1
Soap	Tons	8 736	7 861	6 300	6 953	7 198	6 850	7 333
Rayon		438	3 3		1 0	39	363	669
Cement	Th. Tons	3 9[illegible]	3 [illegible] 1	129 4	266 3	234 8	315 0	366 5
Pig Iron		148 2	146 0	117 1	142 4	140 4	137 9	149 4
Semi finished Steel		117 5*	122 5	84 3	104 1	109 0	102 5	121 0
Finished Steel		103 [illegible]	10[illegible]	71 4	89 7	91 9	85 3	103 6
Aluminium	Tons	610 8	438 6	80 1	320 7	297 2	313 2	407 [illegible]
Copper		6[illegible]0 0	623 0	488 7	530 3	506 6	410 0	596 8
Lead		174 1*	150 0	52 1	71 6	94 3	141	149 0
Diesel Engines	Nos	95[illegible]*	[illegible]04	85	604	354	310	721
Power Driven Pumps	Ths	3 0	[illegible] 3	0 7	4 0	2 7	[illegible] 1	2 4
Sewing Machines	Nos	8 536	7 105	1 668	3 705	4 1[illegible]0	5 [illegible]02	6 683
Machine Tools	Th. Rs	718 2	551 1	456 1	334 2	369 8	367 3	416 9
Dry Cells	Lakhs	144 4	144 8	103 2	119 5	108 5	123 7	123 9
Storage Batteries	Ths	18 7	18 0	9 2	17 7	13 2	14 7	15 7
Electric Motors	Th. H.P.	16 8	17 6	5 0	11 9	13 1	13 5	15 9
Power Transformers	Th. K.V.A.	46 6	39 4	6 8	16 3	17 9	25 7	33 3
Electric Lamps	Ths	[illegible]246 0	[illegible]0 6 5	771	1 293	1 740	1 [illegible]47	1 923
Electric Fans		25 5*	23 5	15 0	17 7	16 3	16 6	19 9
Radio Receivers	Nos	7 282	5 [illegible]92	2 083	6 899	5 958	4 689	4 717
House Service Meters		23 858	11 771			2 863	6 [illegible]23	12 407
Domestic Refrigerators		[illegible]0	118			50	95	84
Power Alcohol	Th. Bulk Gall	807 7	460 5	314 7	484 1	645 2	676 7	667 3
Industrial Alcohol		212 1*	246 1	116 8	163 9	181 5	207 8	236 3
Hurricane Lanterns	Ths	497 0*	516 7	81 6	331 4	293 6	359 4	415 6
Enamel Ware	Th. Pieces	1 014 3	1 134 7	[illegible]3 6	677 5	640 9	730 3	1 248 1

Source **Ministry of Commerce and Industry**

* Figures are for June 1955 The corresponding figures in the next column are for July 1954

Interim Index of Industrial Production for certain selected items
Base 1946=100

	1947	1948	1949	1950	1951	1952	1953	1954	1955*
General Index	97 2	108 4	105 7	105 0	117 2	128 9	135 3	146 6	158 2
Coal	103 9	103 2	108 9	110 8	118 8	125 4	124 1	127 3	132 0
Sugar	97 6	116 5	108 5	105 8	120 8	161 9	139 9	109 2	171 0
Cement	93 9	100 7	136 3	169 5	207 2	229 3	245 1	285 1	291 0
Paper and paper board	87 8	92 4	97 4	102 7	124 4	129 7	131 8	146 5	170 0
Cotton yarn	94 8	105 9	99 4	85 9	95 4	106 0	110 1	114 2	115 0
Cotton cloth	96 2	110 5	99 9	93 8	104 3	117 7	124 8	127 9	128 6
Jute	96 6	100 2	84 8	76 8	80 4	87 4	79 8	85 2	94 0
Chemicals	102 7	158 5	194 3	229 0	260 2	388 8	517 7	622 4	662 0
Iron and Steel	97 1	97 1	104 6	111 2	116 0	122 0	116 5	130 2	134 0
Engineering	95 2	136 5	167 2	203 1	265 7	233 0	258 7	319 3	374 0

The Interim Index of Industrial Production
Base 1946=100

	1949	1950	1951	1952	1953	1954	1955
January	104 1	100 2	111 4	123 4	131 1	133 2	150 9
February	112 8	109 1	117 7	129 0	135 9	141 6	158 7
March	106 6	107 0	111 6	125 5	131 1	138 1	163 2
April	114 8	100 8	117 5	131 7	140 6	145 6	167 2
May	105 6	104 5	117 7	126 8	132 8	140 3	152 2
June	105 8	108 1	116 7	121 6	133 2	146 0	157 3
July	98 7	106 5	114 4	128 9	136 3	150 5	159 1
August	102 7	102 8	120 4	126 7	131 0	147 4	155 9
September	105 2	100 3	118 3	129 1	137 3	152 5	
October	95 7	97 9	119 9	127 6	133 5	141 6	
November	107 8	112 5	123 7	134 6	134 5	160 7	
December	115 5	113 2	128 2	138 6	144 7	165 8	
Annual Average	105 7	105 0	117 2	128 9	135 3	146 6	

* Estimated

THE TERTIARY SECTOR

The developments in the primary and secondary sectors which have been described have naturally carried over to the tertiary sector, which includes all Services and in particular Communications There has been a marked development of transport in these years particularly in civil aviation and the larger carriage of passengers and freight by the railways The figures below will give some indication of the developments under these heads Transport remains a serious bottleneck not because there has been no development but because of the remarkable increases in production which now place heavy demands on all forms of transport

Inland Transport—Railways (Monthly average)

Year	*Freight traffic & earnings*		*Passengers traffic & earnings*	
	Net ton miles (in Millions)	*Earnings from goods carried (Rs Lakhs)*	*Passenger miles (in Millions)*	*Earnings from passengers carried (Rs Lakhs)*
1948	1 859	9 02	3 060	7 31
1949	2 085	10 95	3 168	7 50
1950	2 225	11 42	3 353	7 96
1951	2 336	12 42	3 187	8 90
1952	2 372	11 79	2 859	8 11
1953	2 447	12 11	2 935	8 18
1954*	2 459	12 15	3 056	8 41

Civil Aviation—Internal and International Services (Monthly Average)

	Miles flown (000)	*Passenger miles carried* (000)	*Freight ton miles carried* (000)	*Total load ton miles* (000)
1948	1 054	15 056	186	1 652
1949	1 258	16 293	311	1 989
1950	1 575	20 005	852	2 937
1951	1 625	22 055	1 061	3 330
1952	1 630	20 906	1 006	3 214
1953	1 600	20 911	997	3 216
1954	1 650	23 907	1 049	3 574

*Average of 10 months

FINANCIAL POLICY

Something should be said on the financial policy of the Government of India and on the character of the banking and financial elements of the private sector The record, read as a whole is one which can give great satisfaction The history of prices over the last seven years is shown in the tables below which give figures for the index of wholesale prices and the cost of living in important areas in the country There were times when as the tables will show, large inflationary pressure displayed itself with relatively little capacity for control but over the whole period and largely in the last three years the record has been one of *which the country might well be proud*

The components of this remarkable stabilization of prices are difficult to enumerate It is likely that by far the most important component was increased production which cushioned the additional flows of money supply which have been injected into the system with increased deficit financing required by additional development expenditure Secondly, there has been a rise in capital formation which is estimated now to impound something like 15 per cent of additional income produced Thirdly there has been a rise in deposits in banks particularly in the years 1954 and 1955 and in government loans which have protected the economy from excesses of liquid money It is likely that all these components will continue to operate in the next *Five* Year Plan

Alongside the marked control in internal finance must be set India s remarkable achievement on her international account Contrary to the predictions that India would run a large unfavourable balance of payments in the last three years of her Plan the accounts for these years have been balanced and have even permitted repayment of a substantial portion of a loan to the International Monetary Fund and the building up of India s sterling balances since 1952 Here it would appear that the prospects are not likely to be as good in the Second Five Year Plan which will necessarily be accompanied by a much heavier import programme

Wholesale Prices (All India)

Base Year ended August 1939=100

	Food Articles	*Industrial Raw Materials*	*Semi Manufactured Articles*	*Manufactured Articles*	*General Index*
1948	374 1	430 5	316 6	340 6	367 1
1949	389 2	463 9	328 1	343 9	381 1
1950	410 4	503 2	340 9	348 4	400 7
1951	409 8	608 2	377 5	395 5	439 3
1952	359 8	453 8	346 5	377 5	386 9
1953	380 8	459 7	356 3	367 0	393 9
1954	358 3	447 1	355 4	375 5	386 7
1955*	317 5	404 2	326 3	371 2	357 3

*August.

Working Class Cost of Living Index Numbers
(Monthly Averages)

Base	*Bombay* June 1934	*Madras* June 1936	*Kanpur* Aug 1939	*Delhi* Aug 1939	*Nagpur* Aug 1939	*Calcutta* Aug 1939	*All India* 1949
1948	303	309	471	344	372	339	97
1949	307	323	478	344	377	348	100
1950	313	325	434	344	372	349	101
1951	330	334	451	370	391	370	105
1952	337	330	441	373	380	351	103
1953	363	351	453	366	387	349	106
1954	359	341	408	360	372	327	101
1955*	340	316	371	336	364	325	—

CONCLUSION

In conclusion perhaps one should draw attention to the state of public confidence in India s economic policy Fears that a sudden spate of legislation—such as that included in the amendments to the Constitution and the Indian Companies Bill—and of increased taxation in the budget for 1954 55 would greatly depress business confidence have not materialised It may be that this is because the shocks were absorbed by a significant rise in production again both profits and sales have been comparatively easy in the last few years In the last analysis a business man accepts the trends of events before fears in the minds of theorists In theory Indian policy has been bad for private enterprise In fact both actual profits and order books have been full The socialist pattern of society seems thus to have lost some of the terrors which it had early in 1955

It is right that there should be appreciation both of India s economic achievements and the broad sense of realism which has tended to operate in the working of policies It is not however that the dangers of excessive legislation should be ignored After the Industrial Policy Statement of 1948 there was as should now be clear excessive reliance on controls as a means of obtaining fair distribution of goods in short supply In fact, the era of de control partly because it has been accompanied by rising production has been more merciful to the poor This suggests that for a country intent as much upon raising the standard of living as upon social justice there can be a hindrance if there is excessive interference with the market economy On the other hand advocates of what is called free enterprise should recognise what has been an undoubted fact that moderate interference by the Government of India has not detracted either from production or short period incentives

Indian economic achievements in the last three years provide as has already been stated a questioning of the postulates of under developed economies There is something to be said for claiming that Indian politico economic policy is a denial of current business pessimism Free enterprise is not necessarily the only solvent of the problem of production India s mixed economy has shown that it can do as well as almost any country in the world under similar conditions

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July

Complacency on both grounds namely, performance and operation of certain tenets of economic policy should not enter our minds because of our success This is partly because the period of study is short and partly because the challenge of the Second Five Year Plan which commences in April 1956 will be more searching than anything we have already overcome If complacency however is out of place so is pessimism The Indian Ship of State is riding well The Captain on the bridge has the overwhelming support of the Indian people by and large the seas are also calm and friendly Storms may arise but this ship will come safely into port

INDUSTRIAL DEVELOPMENT

INDUSTRIAL DEVELOPMENT SINCE INDEPENDENCE

AN assessment has been made in this article of the industrial development in India since independence It has been divided into four sections The first section deals with the industrial policy of the Government of India and how it has been undergoing gradual change during these years

The second section deals with the production trends in various industries and measures their growth in terms of output It reveals that there has been a significant all round rise in industrial production and the targets set out in the First Plan in respect of cotton cloth sugar plywood and power transformers have been exceeded

The next section examines the part played by foreign investments in India s industrial development The survey of India s foreign liabilities and assets conducted by Reserve Bank of India discloses that contrary to the popular belief that foreign investments in India are declining since independence there has been on the other hand an increase of nearly 45 per cent in the foreign investments in India during the five year period from 1948 to 1953

The fourth and the last section examines the claims of both public and private sectors to production responsibilities by comparing the working of the two sectors A close scrutiny of the figures of profits and losses of the new State undertakings of the Government of India reveals that the Government has failed in the efficient management of these undertakings

Industrial Policy

The Industrial Policy Statement of the Government of India in April 1948 ushered in a new era of industrial development in the economic history of India It set at rest the doubts and misgivings regarding the future roles of public and private enterprise in the industrial field The statement while recognising that the primary objective of the Government was to secure an equitable distribution of wealth pointed out the greater need of stepping up of production particularly of capital goods and of essential consumers goods and the commodities the export of which will

increase foreign exchange resources To this end the policy statement demarcated the respective spheres of public and private enterprise and accepted the principle of mixed economy

The statement divided the industries into four broad categories The industries which were to be the sole monopoly of the State were enumerated to be those of manufacturing arms and ammunition, railway transport and production and control of atomic energy Industries producing coal iron and steel, aircraft manufacture ship building manufacture of telephones telegraph and wireless apparatus excluding radio receiving sets and mineral oils were placed on the concurrent list and it was decided that the State should be exclusively responsible for the establishment of the new undertakings while private enterprise would be left free to develop the existing units for a period of ten years During the ten year period the Government agreed to give all necessary facilities to the existing private enterprise for efficient working and for reasonable expansion At the end of ten year period the situation would be reviewed and if then it was decided to acquire any of these units due compensation would be paid on fair and equitable basis

The third industrial sector which comprised industries producing salt automobiles and tractors prime movers electric engineering other heavy machinery machine tools heavy chemicals, fertilizers pharmaceuticals and drugs electro chemicals industries, non ferrous metals rubber manufactures, power and industrial alcohol cotton and woollen textiles cement sugar paper and newsprint air and sea transport minerals and industries related to defence although left to private enterprise were made subject to central control and regulation The rest of the industrial field was left entirely to private enterprise although here also the Government declared its policy to progressively participate in certain industries e g in the mass production of fertilizers manufacture of essential drugs and synthetic oil from coal

The policy statement was a signal for rapid industrial progress and during these eight years the industrial advancement which has taken place in India bears ample testimony to the wisdom and success of the industrial policy Recently however during the A I C C debates at Ajmer in July 1954 attempt were made to modify and effect changes in the industrial policy of the Government of India by those who swear by nationalisation But the Prime Minister stood with the declared policy and stated that resources in the country being limited they should be utilised in building new State undertakings and not in nationalising existing industries

The year 1955 however started with certain misgivings and doubts with the nationalisation of Imperial Bank of India and the publication of the plan frame The tentative frame work of the Second Five Year Plan has been based on the goal of a socialistic pattern of society This has raised doubts in the minds of businessmen as to what this socialistic pattern of society precisely stands for ? How far is it going to encroach upon private initiative which has shown during the First Plan period its remarkable strength and capacity for industrial recovery and advancement ? If the socialistic pattern of society simply implies State ownership or control of the strategic means of production and rapid development of basic industries provision of certain necessities of life irrespective of the ability to purchase them i.e. free education and medical facilities fuller employment opportunities and provision for labour to economic security and fair wages there is not much which is to be feared But if it goes farther than that and implies a programme of nationalisation and curbing of incentives to private enterprise it shall be treated as a negation of the industrial policy statement of April 1948 to which the Government of India still stands committed

INDUSTRIAL OUTPUT

The significant all round rise in the industrial output in India during the eight year period since independence bears ample testimony to the ability of the Indian enterprise for its remarkable capacity for expansion and growth The pattern of industrial development is best measured in terms of the official

interim index of Indian industrial production which stood at 158 (provisional) in 1955 as against the base 1946=100 The current level of output is thus nearly 60 per cent above the 1947 level Who could have imagined at the dawn of independence that India would be able to enhance its industrial production by more than 60 per cent in about eight years at a rate of nearly 7 5 per cent per annum ? The targets set out in the First Plan in respect of cotton cloth sugar plywood and power transformers have been exceeded and other major industries such as cement, ammonium sulphate bicycle sewing machines and several light engineering industries have shown marked progress

Until 1950 there was virtual stagnation in industrial production due to variou troubles which the economy inherited because of the partition of the country Political as well as economic factors operated against industrial growth From 1951 onwards however the industrial sector recorded an upward movement in its output raising the rate of increase to more than 10 per cent per annum

Factors which contributed to the uptrend were significant investments in the indu trial sector greater availability of raw materials better export off takes fuller utilization of exi ting installed capacity and the establishment of new units and improvement in labour management relations

HEAVY INDUSTRY

During the eight year period heavy industries showed a gradual rise output of fini hed steel rose by 47 percent and that of cement and aluminium by 189 and 99 per cent respectively Still the output is short of the Plan target Measures to step up production have recently been taken Government has advanced a loan of Rs 10 crores to Tata Iron and Steel Company for expansion and modernisation which when carried out will increase production capacity of Tatas by half a million ton In the public sector the establishment of Steel Plant at Rourkela (Orissa) is far advanced and agreement between the Government of India and the U S S R has been reached for the establishment of another steel plant It is expected that by 1959 the output of finished steel in the country will step up from 1 3 million tons to 4 6 million tons 2 4 million tons in the private sector and 2 2 million tons in the public secto

ESTIMATED STEEL PRODUCTION IN 1960

		Output per year (Million tons)
1	Tata Iron and Steel Company	1 5
2	Indian Iron and Steel Company	8
3	Mysore Iron and Steel Works	1
4	Rourkela Steel Plant	72
5	Bhilai Steel Plant	75
6	British Steel Plant	75
	Total	4 62

JUTE MANUFACTURES AND COTTON TEXTILES

Jute Industry was hard hit by partition when the vast areas producing raw jute went to Pakistan Of the total area of 2 4 million acres sown in undivided India only one fourth remained with India

	Area Sown (1000 acres)
1945	2 422
1947	652

Due to scarcity of raw materials the industry s output continued to decline till 1950 In 1951 it staged a recovery and since then the output has shown a steady rise and has now almost reached the pre partition level

JUTE MANUFACTURES

Year	Output (1000 tons)
1950	835
1951	875
1952	952
1953	869
1954	928
1955 (estimated)	1,015

Supplies of cotton textiles have markedly improved The plan target of 4 700 million yards of cloth has been exceeded by over 300 million yards and if existing uptrend continues unfettered by political considerations the production may soon exceed the second plan target of 6200 million yards Factors responsible for this remarkable achievement were better supplies of raw cotton and larger off takes at home and abroad

EXPORTS OF COTTON PIECE GOODS

	(Million yards)
1951 52	424
1952 53	616
1953 54	767
1954 55	814

LIGHT ENGINEERING INDUSTRIES AND CHEMICALS

With the exception of machine tools all round significant progress was registered by light engineering industries The interim index of production stood at 376 3 (provisional) in 1955 as compared with 95 2 in 1947 Output of diesel engines increased to nearly ten times while production of electric motors exceeded the installed capacity of the industry Plan target was exceeded in respect of power transformers whose supply in the country increased to nearly six times

Industry	Unit	Output		Installed Capacity	Plan Target
		1948	1955 (Provisional)		
Power Transformers	000 K V A	82	467	378	450
Electric Motors	000 H P	60	225	200	—
Diesel Engines	Numbers	1020	9 866	—	—

Among the chemicals production of Caustic Soda Chlorine Liquid Superphosphates and Ammonium Sulphate showed marked progress The most significant rises were registered by Ammonium Sulphate and Superphosphates the supplies of the former increased nearly ten times and of the latter nearly eight times since independence Of the rest output of Chlorine Liquid increased from 1 800 tons to 10 500 tons and of Superphosphates from 21 400 tons to 83 100 tons The progress in the Chemicals industry as a whole was also remarkably promising the interim index of production stood at 622 4 in 1955 as compared with the base year 1946 = 100 and 1947 = 102 7

CONSUMERS GOODS INDUSTRIES

Industries producing consumers goods registered remarkable rises The annual production of bicycles in the country increased from a mere 55 000 to 4 5 lakhs and of sewing machines from 20 000 to 96 000 The home supplies of electric lamps and electric fans rose from 92 lakhs and 1 8 lakhs to 248 lakhs and 2 8 lakhs respectively Production of hurricane lanterns was nearly five times in 1955 as compared with 1948 This increased home supply of consumers goods has reflected in declining prices of manufactured goods, thus benefiting the Indian consumer

INDEX NUMBER OF WHOLESALE PRICES FOR MANUFACTURED ARTICLES

	(Base year August 1939 = 100)
1951 52	401 5
1952 53	371 2
1953 54	367 4
1954 55	368 8

OTHER INDUSTRIES

The performances of the remaining industries have also been promising Output in sugar and plywood has exceeded the plan targets Due to higher prices of Gur the production of Sugar was declining till 1954 But in 1955 it staged a recovery and output in 1955 is estimated to be as high as 1 6 million tons nearly a lakh tons higher than the plan target Factors which contributed to this all time record were a bumper cane crop in 1955 and recession in Gur prices which resulted in large diversions of Sugar care from Gur to Sugar manufacture Production of matches and paper and paperboards also showed con siderable progress and the output of paper and paperboards has almost reached the installed capacity of the industry

Industry	Unit	Output 1948	Output 1955	Installed Capacity	Plan target
Sugar	Million tons	1 1	1 6	1 4	1 5
Ply wood	Million sq ft	54	114	—	100
Paper and Paper Boards	000 tons	98	179	186	—
Matches	000 cases	533	612	—	—

This brief study of the production trends reveals that the Industrial economy has gained considerable strength since independence and the country is well on its way to self sufficiency in textiles and various consumers goods and shows a great promise of rapid expansion in heavy industries The Government has taken a number of positive steps in this direction It has extended tariff protection to a number of nascent industries and has lately created the National Industrial Development Corporation to encourage balanced growth of industrial economy and to provide financial aid to deserving industries

FOREIGN INTEREST IN THE INDUSTRY

Soon after independence the national sentiment demanded Indianisation of foreign enterprises in India But saner elements in political and business circles realised the impractibility of such demands in face of the country s desire for rapid industrial progress need for capital equipment and serious shortages of foodgrains and raw materials In the Industrial Policy Statement of April 1948 the Government of India clarified its attitude towards foreign capital It recognised the value and the need of both foreign equipment and foreign enterprise and indicated its willingness to afford facilities for both subject to the conditions that the major interest in the ownership and effective control of these industries should always be in Indian hands and that in all cases these undertakings should offer suitable facilities for training Indian personnel to eventually replace foreign technicians and experts The Government agreed to accord equal treatment to both Indian and foreign enterprises and to offer adequate facilities for remitting profits abroad It gave adequate guarantees of fair and equitable compensation in case of nationalisation at a later stage

The survey of India s foreign liabilities and assets conducted by Reserve Bank of India as on December 31 1953 reveals that foreign investments in India in 1948 were of the order of Rs 288 crores which increased to as much as Rs 419 crores by 1953 *i e* an increase of nearly 45 per cent within a period of five years The largest increase was in the manufacturing sector where the total foreign investments rose

from Rs 72 crores to Rs 136 crores Within the manufacturing sector industries of cigarettes and tobacco mineral oils and products and electrical goods attracted the largest share of fresh investments among themselves they apportioned more than half of the total fresh investments

FOREIGN INVESTMENTS IN THE MANUFACTURING SECTOR

Industry	Foreign Investment (in crores of rupees) 1948	1953
Mineral Oils and Products	1 0	9 7
Sugar	1 3	3 2
Electric Goods	4 8	12 0
Matches	1 7	3 2
Cigarettes and Tobacco	6 2	25 6
Medicines and Pharmaceuticals	0 5	5 5
Iron and Steel Products	5 5	6 7
Other Industries	51 0	69 8
Total	72 0	135 7

THE BATTLE OF THE SECTORS

With the declaration of the Industrial Policy Statement of April 1948 it was hoped that the battle between the two sectors public and private will cease and both will work in unison for rapid economic development of the country The demarcation of the respective spheres of public and private enterprise and acceptance of the principle of mixed economy was expected to bring about lasting peace between the advocates of both The record of the performances of the private sector during the eight year period since independence has fully demonstrated the competence of the private enterprise to cope with any desired programme of industrial development But since the acceptance of the principle of socialistic pattern of society by the Government as the desired goal the battle royal has again started Under this new context what should be the order of production responsibilities between the two sections? Should economic efficiency and better management be the criteria or political expediency?

A close scrutiny of the figures of profits and losses of new public undertakings of the Government of India excluding those whose profits are being pooled with the railway budget reveals that in the year 1953 the latest year for which figures are available the total losses were of the order of Rs 132 lakhs while total profits amounted to only Rs 121 lakhs With the exception of Sindhri Fertilizer Factory and Indian Telephone Industry where the Government has been able to earn some profits the record of the new public enterprises has been disappointing The Government failed to manage properly the Indian Airlines Corporation where it gave a loss of as much as Rs 92 lakhs in 1953 The other notable public undertakings which showed considerable losses were Hindustan Shipyard and Hindustan Machine Tools the former showed a loss of nearly Rs 19 lakhs and the latter of about Rs 8 lakhs

The conclusion is irresistible that in certain spheres *i.e.* in the spheres of producers goods and consumers goods industries the private enterprise is more efficient than the public and the State should not enter into such spheres as could well be entrusted to private enterprise The task of the State should be to undertake projects which are beyond the capacity of private enterprise *viz* development of railways hydro electric power generation and distribution and industries manufacturing arms and ammunition

ROLE OF BUSINESS HOUSES

THE first locomotive which steamed out of Victoria Terminus Bombay more than a century ago was the harbinger of a new age of industrialisation in the economy of this country That Age was not slow in arriving Its march was so rapid and so revolutionary in the history of this country as in the West There was another outstanding feature of industrialisation everywhere Its foundations were laid and its superstructure was also built by the initiative enterprise and sacrifices of private enterprise functioning in free economies To day when we look at the prosperity which industry has brought in the standards of living at all levels we are apt to overlook that this prosperity could never have been achieved without ordeals of failure and sacrifice braved with unflinching pressure and unfailing faith by private entrepreneurs

Historical antecedents have left their impress on the pattern of industry in this country Because of initiative and enterprise which it had developed in its homeland and undoubtedly because also of political patronage British private enterprise took on itself the task of pioneering modern industry in this country But its first ventures were confined largely to the development of export industries—jute plantations mining and the like

Indian private enterprise which was denied all the benefits that flow from political freedom and was consequently working under severe inhibitions inevitably took some time to appear on the scene The real period of its initial growth dates between 1880 and 1910—three decades of trial against odds It had to face a situation of acute competition from abroad and apathy of a foreign government at home But it stood all the trials in uninterrupted succession for well over a quarter of a century

Then came after a long period of acid test the surging wave of the movement of Swadeshi in 1906 A whole nation was shaken out of its lethargy and inertia to be awakended to an acute sense of throwing off its economic shackles How powerful was the motive force of Swadeshi can be illustrated with one simple example Tatas who went to the London money market to raise capital for their Iron and Steel project had to come back with empty hands The British investor had not an iota of faith in the capacity of Indian enterprise to make a success of this business venture But the spirit of Swadeshi fired the imagination and kindled the faith of thousands of Indians possessing but poor resources The entire capital of £1 630 000 was subscribed by 8 000 Indian investors in a matter of three weeks It is not in India alone that the spirit of Swadeshi has fostered the growth of industry While each nation disclaims the weapon of Swadeshi at the Conference table, it consciously allows its technique to masquerade under various clever devices

This is not the place to recount all the brave struggles waged by private business houses in building the structure of Indian industry in its multifarious aspects But it would be unfair not to make a passing reference to the shocks of nerve breaking set backs which these business houses absorbed during the depres sion of the nineteen thirties The opportunities offered by the two World Wars and the boom that followed in their wake have been turned by them to fruitful use for nation building industrial enterprises From basic industries like iron and steel shipbuilding and aeroplane construction automobiles and host of engineering enterprises to heavy chemicals as well as consumer industries ranging from cotton textiles to confectionery all owe their genesis to private enterprise in which Indian business houses had a predominant part to play

Today India stands at the cross roads in having to make a choice of the shape of her future social and economic order Let not Parliament s commital to a socialistic pattern of society create albeit unwillingly an obsession with state owned economy Let us turn a leaf from the experience of indus trialised countries like Britain not to opt blindly for nationalisation in each sphere This is an age of co existence where we need a harmonious working of the public sector and the private sector as absolute agencies achieve assured progress It has become fashionable to decry and denounce the system of private enterprise as an engine of oppression and exploitation Our faith in the private enterprise to the extent that it has genuine potentialities to offer its share in building a progressive economy based on social justice stands in pressing need to be revived and sustained

It is proposed in this brief article to review the contribution of some of the representative Indian business houses to the growth of the country s economic life The selection of the business houses made here is only illustrative and implies no suggestions of any sort on the nature of the role which numerous other houses are playing in our national life

TATA SONS

In the galaxy of Indian Business Houses Tatas take a pride of place by virtue of their pioneering enterprises the comprehensive coverage of their industrial activities and the magnitude of the capital investment involved The restless spirit of young Jamsetji Nusserwanjee Tata founder of the House of Tata (1887) would not remain content with the narrow limits of the family business nor could the initial set back received in the venture of setting up a bank act as a deterrent to it A plunge in an attractive con tract connected with Napier s expedition to Abyssinia repaired the losses of family resources This again was nothing compared with the new vision and bold imagination which young Jamsetji acquired during his stay of four years in London—for business arising out of this contract Could his mother land not raise its economic stature by stabilising the solid foundation of industrial prosperity on modern lines?

Long hours of deep thinking led the founder of the House to three basic convictions (a) A country cannot aspire to rise from strength to strength in industry unle s the base of an iron and steel industry was firmly laid (b) Progress in industrial growth cannot be sust ined unless the native talent assimilates the latest advances in science and technology (c) In a country where coal reserves are concentrated principally in one region remote areas possessing great industrial potential like Bombay could translate the potential into a concrete reality by developing proximate resources of cheap and plentiful electric power Tatas have given a physical shape to these three articles of faith by building up the iron and steel works at Jamshedpur, establishing the Indian Institute of Science at Bangalore the *alma mater* of many of the country s great cientists and technicians and by creating a major hydro electric (to which is now to be added the thermal) power system which has released Bombay from costly dependence on the supplies of Bihar coal

In the brief space available here a broad reference may be made to the range and size of the industries fostered by the House of Tata Tata Sons Limited who own Tata Industries Limited operate the largest single group of industries in this country These industries have an aggregate capital inve t ment of Rs 136 crores with an annual output of goods and services valued at Rs 61 crores and provide employment to 116 600 persons Although the Empress Mills Nagpur (founded in 1877) was the first industrial venture of Tatas the industrial history of the country has awarded the highest rank to their steel plant—The Tata Iron and Steel Company Limited (founded in 1907) The company owns its own mines quarries and collieries In 1954 55 its output of pig iron was 1 3 million tons of steel ingots 1 5 million tons and of saleable steel 783 000 tons A 25 crore rupees plan of modernisation and expansion is under way and a recent agreement with the Government is estimated to enable it to undertake an additional pro gramme of expansion worth Rs 60 crores raising its annual production to 1 5 million tons of finished steel The present subscribed capital is Rs 17 34 crores

Tatas hydro electric power system the largest in the country has an aggregate capacity in combination with the Bombay grid and railway thermal plant of 390 000 KW and annual production of 1 800 million units The total subscribed capital of the three companies is Rs 12 84 crores Tata Loco motive and Engineering Works now manufacture 50 locomotives and 50 extra boilers per year The loco production capacity will be doubled by 1958 In 1954 their enterprise entered into an agreement with Daimler Benz A G of Germany to et up a highly mechanised modern foundry for iron and steel castings Among the other Chief ventures of the House of Tata are Voltas in collaboration with Volkart Bros of Switzerland Chemical products and Oil units Tatas have achieved striking success in the insurance business most up to date hotel industry and a large investment corporation Their enterpri e in the Civil Aviation Industry (now nationalised) was a potent factor in pushing the progress of commercial aviation at home and particularly aborad

A remarkable feature of the Tata Sons Capital is that 85 per cent of it is held by philanthropic trusts endowed by members of Tata family

BIRLA BROTHERS

Messrs Birla Brothers have raised their stature to a top rank in India by their outstanding contri bution to a wide range of new lines of production The genius behind the house of Birla is Mr G D Birla who has never allowed his vision and view of the future to be cramped by a narrow outlook It is a charac teristic feature of the approach of Birla Brothers to the industrial progress of India—they seek to resort to unconventional choice of ventures Although the name of Birla Brothers is long connected with the Jute

Industry history will record their contribution to the transport manufacturing industries as the most valu able and enterprising Thus Birla Brothers have shown a commendable degree of enterprise and risk in launching the Hindustan Motors Ltd producing rolling stock for railway like freight wagons and allied equipment bicycles and so forth A striking illustration of the unconventional approach to industrial development which Birla Brothers have shown is the variety of lines of textile production in natural as well as synthetic fibres

Hindustan Motors Ltd the premier contribution of Birla Brothers to India s industrial expansion n recent years is already sufficiently advanced in manufacturing motor components and parts in the plant itself The initial phase of handicaps and consumer prejudice was overcome with a dogged determination to go ahead with the automobile development programme but in the last two years the entire change in the Government s policy on automobiles has given a stimulus to the rapid expansion of this plant Its products include the popular Landmaster and the Baby Hindustan Car Future expansion has made adequate *allowance for the production of freight trucks Part of the capacity of the plant is utilised for the manu* facture of Diesel Engines for which the domestic demand and the demand of the neighbouring export market is steadily growing

Birla Jute Manufacturing Co takes place today as one of the most successful ventures of the Birla group of industries It has the pride of place as India s first jute venture to be established under Indian management From a modest size of 450 looms it expanded to 1 373 looms on the eve of the war and this loomage capacity has been maintained undiminished in spite of a period of adversity for the jute industry after the partition of the country In addition Birla Brothers also manage Soorah Jute Mills and Ramesh wara Jute Mills Birla Brother s bias for the unconventional is strikingly demonstrated in the pioneering lines which they have introduced in the sphere of textiles Linoleum acetate fabrics fabrics produced with a substantial admixture of staple fibre a variety of flax and textile products including those required for hoses tarpaulins canvasses linen suitings indicate new manufacturing product started by Birla Brothers They also operate a woollen textile mill but of greater importance than this venture is their share in the country s cotton textile production They manage a group of five cotton textile mills among which Kes oram Cotton Mills Ltd needs brief mention Today Kesoram Cotton Mills comes before the mind as the biggest composite unit in Bengal but it is necessary to recall that Birla Brothers did not have an easy walk over in building its progress During the gloomy period of the depression of the thirties Kesoram Cotton Mills was steeped in heavy financial losses and here there was a great test of the spirit of Birla Brothers of initiative and enterprise Preference Dividends and normal depreciation fell in heavy arrears and the manag ing agents had to advance loans rising as high as Rs 18 6 lacs for this single unit The capacity of the mill now stands at 71 400 spindles and 1 990 looms

Among the capital industries of basic importance operated by Birlas mention must be made of the National Ball Bearing Company which manufactures ball and roller bearings—the pioneering enterprise in the country in this field Texmaco Calcutta and Gwalior factories have stabilised their position in the manufacture of textile machinery

In the short space available full justice is difficult to be made to the complete range of manu facturing lines in which Birla Brothers have invested their fortune and talents They have undertaken successful manufacture of calcium carbide in the Birla Jute Mills as a subsidiary company and again this is the first enterprise in this sphere in India The remaining important enterprises of this group of indus trialists include sugar paper vanaspati plastics pharmaceuticals radios confectionery and electrical appliances Their comprehensive approach to the development of industry has induced them in a different

field—tea and coffee plantations—where Indian enterprise has generally functioned as a specialised branch of industry

The philanthropic activities of Birla Brothers have been extended, besides the normal spheres of general educational institutions and hospitals to founding institutions for engineering and technical training as well as for basic scientific research

SAHU JAIN

Within a span of a little more than two decades, Messrs Sahu Jain Ltd have made their mark on the fraternity of the leading industrialists of India With a confidence that is born of a spirit of enterprise grounded on a wealth of experience Sahu Jain are steadily raising their stature Twenty three years ago this group of industrialists started with a humble beginning of a small sugar factory in Bihar But in course of time there have been ramifications of their manufacturing establishments which have covered not only integrated and dependent lines of ancillary production but new and altogether unconnected ventures Mr Shanti Prasad Jain the guiding spirit behind Messrs Sahu Jain has set before himself two goals in expanding the manufacturing potential of this group They are that instead of following the line of least resistance and setting up additional plants in industries where a sufficient advance has been made by this country and locking the scarce resources of the country in duplication of factories Mr Shanti Prasad Jain firmly believes in selecting new ventures which will help in eliminating the dependence of the country on imported products It may look as if the present requirements of certain products which have been purposely taken up by Messrs Sahu Jain have not a very large volume of demand but precisely these are the products where the country has not beaten new path In the second place Mr Shanti Prasad lays a special stress on continuous research in bringing about technological improvement

Consistently with the size of the factories owned by Messrs Sahu Jain the research laboratories attached to them are planned on medium scales But this factor has not in the least detracted from their contribution to advances in the field of technical research As will be presently pointed out this group has pioneered many new lines and sub lines of manufacture It is usual to level strong criticism against Indian industrialists on the core that they do not fully grasp the significance of continuous research and do not show the breadth of vision to make costly investment in it unlike the industrialists of the West Messrs Sahu Jain represent the younger generation of Indian industrialists who refuse to hesitate risks in research Their rational and modern approach to progress in industry is demonstrated in another striking manner In most of their factories statistical quality control of which not many of the groups of indu tries in this country can boast has been introduced Messrs Sahu Jain have developed twenty major categories of manufacturing industries most of which have clustered in the industrial area of Dalmia Nagar No less a critic than Mr T T Krishnamachari who certainly cannot be accused of any bias for private enterprise has turned into an admirer of Messrs Sahu Jain and this admiration has been induced by the sheer achievements of the house of Jain He said I will not object to the continuance of the private ector if there are more and more Dalmia Nagars in the country

Among the industrie owned and operated by Messrs Sahu Jain Ltd the Rohtas industries located in Dalmia Nagar for the most part easily stand out as the leading ones They comprise the original sugar factory started in 1933 a cement factory a paper factory bamboo bagas e and wood pulp plants chemical plants and asbestos cement factory a spun pipe factory a Vanaspati factory and a confectionery plant besides a power house To those who picture managing agents as a class of industrialists amassing vast wealth and grabbing commission income in every conceivable way it should come as a revelation that there are frequent situations when managing agents have to save the enterprises in which

shareholders have a heavy stake by risking their own funds Messrs Sahu Jain had to meet quite a number of such situations It redounds to their credit, as it does to some more of their compeers that they have voluntarily forgone the managing agency commission on a number of occasions during the post war period which is supposed to have brought uninterrupted financial prosperity on the crest of the boom

The different units constituting Rohtas Industries turn out annual output of the value of Rs 11 crores and provide direct employment to 7 000 persons Paper and allied industries exemplify the pioneering vision and managerial skill of Messrs Sahu Jain The paper factory of Rohtas Industries manufactures a wide range of papers and boards Its capacity which was merely 6 000 tons of papers and boards in 1938 has been stepped up to 16 000 tons and the vigorous programme of expansion that is now under way envisages raising the capacity to 52 000 tons per year by October 1956 This plant includes in all 8 different kinds of machines In this specific sphere, the fruits of Sahu Jain s research and pioneering enterprise are seen in an arresting manner They are the first in the country to manufacture all varieties of light weight paper from bagasse coated boards which were hitherto exclusively imported but whose domestic requirements of the order of about 12 000 tons will be satisfied by the plant valcanised fibre sheets produced in India for the first time without foreign technical assistance in any form bleached pulp from bagasse wood pulp from a variety of Indian timber manufactured by mechanical processes and so forth

Dhrangadhra Chemical Works Ltd are intended primarily to satisfy the requirements of the pulp and paper factories of Rohtas Industries and they produce caustic soda chlorine bleaching powder and sulphuric acid It is significant that their capacity is being enlarged primarily for greater output of caustic soda and chlorine to the tune of 5 000 tons each The high quality of caustic soda is expected to *suit the requirements of the rayon industry for which purpose part of the new capacity will be spared* Dhrangadhra Chemical Works have a plan of extension in South India by setting up caustic soda and soda ash plants at Tuticorin to take care of the total needs of the South The close of the current calendar year—1956 —will see bold expansion in the cement factories located at Dalmia Nagar and Savai Madho pur raising the annual production capacity to 1 2 million tons together per year Rohtas Industries rank among the country s two leading manufacturers of Asbestos Cement Products Messrs Sahu Jain have a distinguished association with India s Jute Manufacturing Industry and their Jute Mills account for a combined loomage of 1 765

Newspaper and printing is the latest large scale venture into which Messrs Sahu Jain have entered They are now the proprietors of Bennett Coleman & Co who are the publishers of the country s mammoth groups of papers consisting of the The Times of India and two more dailies two weeklies one fortnightly one annual and one valued directory The Times of India press which is the corner stone of this group of industry is the largest not only in India but in the East The distinction of running the leading English Daily and the leading Hindi daily of India has been captured by this group

Messrs Sahu Jain have not lagged behind in philanthropic and cultural activities The Sahu Jain Trust makes continuous awards of loan scholarships to brilliant but resourceless students to complete their educational careers The Trust also grants scholarships for research and advanced studies in India and abroad They benefit on an average 200 students per year It is a tribute to the quality of research in Rohtas Industries that China and Ceylon have sent their technicians for training in the plant manufacturing bleached pulp from bagasse

SOORAJMULL NAGARMULL

Messrs Soorajmull Nagarmull have chosen to confine their industrial activities in important spheres but by the very reason of this self chosen restriction they have had an opportunity to show the skills

in specialisation No account of the group of industries managed by this business house can properly start without making first mention of the Bengal Jute Mill Company This company was floated as a transformation of a going concern in 1940—a critical period for the share market when capital had become not only shy but frightened owing to the reverses which the allies suffered at the hands of Hitler s Germany in the early phase of the last war Bengal Jute was conceived as a bold floatation at an inopportune time and if its issue of debentures and preference share capital of the order of Rs 10 lacs each was fully under written with a marginal premium for the preference shares this performance amounts to a verdict of con fidence in the financial soundness and managerial abilities of Messrs Soorajmull Nagarmull The gross block of this enterprise rose from Rs 31 02 lacs at the end of 1940 to Rs 54 88 lacs at the end of June 1953 Besides jute this business house has made a succe s of important lines of manufacture which include cotton textiles leather cloth chemicals soaps and so on The Oriental Gas Company Calcutta has earned the gratitude of the residents of the city for the comforts and amenities which it has brought to their domestic life

KARAMCHAND THAPAR & BROS

In the fraternity of indutrialists of this country Messrs Karamchand Thapar & Bros have earned a place of stable reputation and soundness In the sphere of paper manufacture they have launched a vigorous programme of diversified production Paper output ranges from the usual white printing paper to coloured printing paper varied requirements of stationery paper and choice qualities required for pecia lised purposes like thin typewriting and airmail paper The two mills owned by Messrs Karamchand Thapar & Bros are Shree Gopal Paper Mills (Jagadhri in Punjab) and Ballarpur Paper & Straw Board Mills (Ballarpur, Madhya Prade h) But in particular the chequered history of the growth of Shree Gopal Paper Mills testifies to the qualities of perseverance and enterprise of Messrs Karamchand Thapar The Mills were purchased by them in 1926 when they had gone into liquidation and the condition of the major part of the assets had become dilapidated The initial period under the new management was one of severe trial but the management emerged successfully out of it In less than two decades Shree Gopal Paper Mills have been developed to the position of a major unit in India s paper industry Production rose from 5 000 tons in 1938 to 14 000 tons in 1953 and the immediate programme of expansion provided for a further increase to 24 000 tons The supplementary lines of production in this unit consist of vanaspati soap and stationery The paid up capital increased to Rs 58 lacs in 1953 an increase of 100% since 1946 Among the chief enterprises in which this house has invested risk capital are coal sugar cotton textiles electricals radios and engineering equipment

MESSRS BHARAT RAM CHARAT RAM & CO LTD

This Managing Agency house has earned a place of distinction among the foremost leaders of industry in North India Their premier venture the Delhi Cloth and General Mills has an old and conti nuous reputation for production of cotton cloth both high quality as well as popular quality In recent years they have made great strides in the production of ready made garments and a very wide variety of household furnishing fabrics Apart from textiles this unit has made important ramifications It includes chemical works a vanaspati factory a tent manufacturing works and a power and alcohol plant DCM s research laboratory has now become an essential and integral part in the country s institutions of industrial research Of a totally different character is their entry in the field of engineering industries A number of products are manufactured by the Jay Engineering Works but the Usha Sewing machines electric fans and hurricane lanterns have made very rapid progress The Usha Sewing Machine is building up a steady export market It is characteristic of the manufacturing policies of this house that at a time when India

has not planted her feet firmly in the field of engineering production they have pursued a *deliberate policy of reducing the sale price while incurring higher social expenditure on labour* welfare

THE BRITISH INDIA CORPORATION

The British India Corporation has a network of varied industries which have been centred principally around Kanpur In the short space available for a very broad review of the activities of different industrial groups in the country mention can be made of only a few of the outstanding enterprises which are being carried out in an efficient manner under the Corporation s management Dhariwal has now become a house hold word particularly in north India, where the great relief and comfort which Dhariwal s woollen fabrics *bring to the general mass of people at prices suited to their pockets are remembered with the feeling of grati* tude Time was when woollens had to be procured from imported sources at high prices and the middle and lower classes had to undergo quite a measure of austerity in the bitterest of winter seasons Dhariwal has altered this situation with remarkable rapidity and India has been enabled to progress towards self sufficiency in the production of woollen fabrics

During World War II Dhariwal s capacity was switched over to defence production and the management had no choice whatsoever in the matter of catering to the requirements of the civilian population harassed by the hardships of inflation But as soon as freedom was restored to the management the British India Corporation lost no time in reorganizing and rationalizing the capacity of its woollen plant Quite a number of uptodate *constructional and organizational improvements were incorporated in the woollen mills* This inevitably required heavy capital outlay which was not grudged because it was bound to be fully reflected in the qualitative improvement of the manufactures The progress achieved since independence needs at least passing narration Before the end of the war Dhariwal concentrated mainly on the output of coarse and medium varieties of yarn and cloth This has now become a thing of the past and the new machinery *which was installed at suitable intervals has enabled the factory to produce a wide range of fabrics* of fine and medium qualities for which the consumer demand has now become stabilised Dhariwal s woollen and wors ted fabrics blankets tweeds knitting yarns and other products have earned a reputation in the home market for quality and durability at modest prices A new dye house the erection of which was completed in 1952 and a new weaving shed which amounts to renovation of the old building and is still under completion *constitute the main planks in the expansion of the factory* The *management has always shown great soli* citude for maintaining quality control in its products

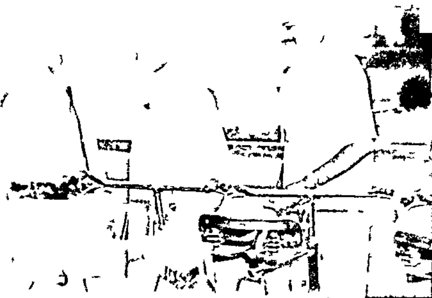
The British India Corporation undertakes other industrial manufactures of importance to the Indian economy But here mention must be made of its leather and footwear products Flex footwear unlike cer tain utility *footwear which has intruded into the* Indian market has established a name *of its own for quality* A variety of leather products is also produced by the Corporation s manufacturing units After the partition of the country supplies of raw hides and skins threatened to retard the progress of leather and foot wear pro duction But the Government s helpful policy in encouraging indigenous output of raw materials and vigilant regulation of exports of hides and skins has enabled the Corporation like its compeers in the sphere, to under take a programme of expanded leather and footwear manufacture

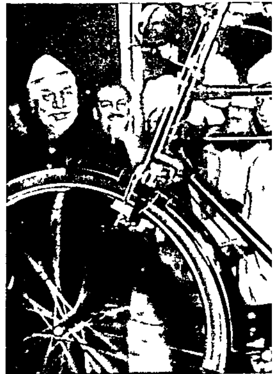
The British India Corporation has always shown a keen awareness of its obligations to labour for welfare Housing schools canteens and amenities of recreation constitute its main programmes to raise the levels of labour welfare

OTHER LUMINARIES

In a brief and therefore inadequate survey of the role of business houses in the industrial economy of this country the error of omission is undoubtedly likely to be very great It was mentioned at the outset that the specific description of some select business houses is in no way exhaustive but that it is merely illustrative and the omission to mention those who have earned a status of high distinction is to be blamed on the limitations of space Nevertheless some of the luminaries on the industrial horizon of the country must be mentioned even if in a passing manner The house of Singhania has placed the economy under definite obligation by launching the first Indian owned and managed aluminium enterprise against heavy odds Particular note must be taken of the fact that in this industry the national borders are transcended and international cartels have become too powerfully entrenched for nascent ventures in underdeveloped countries The Walchand group of industries has shown a remarkable degree of venture in food industries commercial agricultural industries and construction industries Their name is more inextricably bound up with basic industries like ship building and aeroplane manufacture In Bombay State a large number of enterprising houses have made their mark on the recent development of industry The South has certainly never lagged behind and it is all the more to the credit of industrial pioneers in the South that they have not allowed their spirits to be daunted by the relative inadequacies of resources What the South lacks in material resources she has more than compensated by her acknowledged resources in talent Mysore State under *the erstwhile royal patronage has flourished into an advanced industrialised region If a representative* name of a distinguished business house from the South is to be mentioned the name of Seshasayee Bros at once comes before the memory Their greatest contribution to the national industry has been in the field of chemicals but they have also ventured into forbidding fears like aluminium products

Atlas Industries help to make country self sufficient in Cycles The President, Vice President and Prime Minister Examine the Eastern Star Cycles, produced by Atlas





WITH the attainment of independence development activity in the country gathered a great deal of momentum Projects which were under way were given a new impetus and new projects of vital importance were taken up to aid in the rapid development of the country Construction of buildings roads bridges aerodromes etc was undertaken on a large scale

During the past eight years since August 1947 The Central Public Works Department successfully undertook and completed schemes costing over Rs 70 crores On the housing side alone the Department completed the construction of 34 420 houses and tenements and 4508 shops for displaced persons from West Pakistan and 9664 houses for the staff of the Central Government at Delhi

The works entrusted to this Department all over the country were of varied nature Their sites lay as remote and far flung as Jammu & Kashmir Sikkim Bihar Orissa Assam Tripura Coorg and Andamans Islands etc Landmarks in the construction activity of the Department are the Jammu Pathankot Road Civil Engineering Works for the Sindri Fertiliser Factory buildings for the Calcutta Telephone Automatisation Scheme the Indian Institute of Technology at Hijli Kuakhai and Kathjuri bridges near Cuttack in Orissa Colonies for the displaced persons at Delhi Banihal Tunnel Conference Hall & Hostel Building for the UNESCO at Delhi Supreme Court Multi storeyed office buildings in Delhi Bombay and Madras District Courts in Delhi etc Details of these and other important works executed by this Department, grouped under various categories are given below

I ROADS & BRIDGES

(a) (i) Jammu Pathankot Road

With the partition of the country in 1947 road link between India and the States of Jammu & Kashmir was severed as the then existing communicating roads fell in the Pakistan territory The task of

constructing a road to connect Jammu with Pathankot the nearest railhead in India, was entrusted to this Department in October 1947

A team of engineers was immediately set on the job An aerial survey of the terrain through which the road had to pass was undertaken and the alignment of the road fixed by December 1947 Work was started immediately therafter and a 12 feet wide bitumenised road 65 miles long with 3 major bridges and numerous minor bridges culverts and causeways capable of carrying heavy military traffic was completed in a record time of only six months at a cost of Rs 3 crores

(ii) **Dhar Udhampur Road**

At present Jammu & Kashmir State is accessible by the Pathankot Jammu Road which runs very near to the Pakistan border As it does not serve the interior of Jammu Province of Jammu & Kashmir State the Government of India decided to construct another road which will not only provide an independent approach to the Jammu and Kashmir State but also serve the interior of the State

The Road takes off from the Pathankot Dalhousie Road at Dhar and joins Jammu Srinagar Road at Udhampur and is aligned to pass through Thein Manpur and Ramkot It will be about 95 miles long and is expected to cost about Rs 4 5 crores

In addition to the above a link road about 20 miles long is being constructed to join the Pathankot Jammu Road with the Dhar Udhampur road near Ramkot This link road will take off from the Pathankot Jammu Road at Tarnah causeway and pass through the village Ding Amb It is expected that Jeepable track will first be completed along its entire route by the end of 1956 and then the whole road finished in all respects in 1958 59

(b) **Banihal Tunnel Project**

The present route to Kashmir valley which crosses the Pir Panjal range of hills in Jammu & Kashmir State at an altitude of about 9 000 feet above the mean sea level remains snow bound during winter and renders the valley of Kashmir inaccessible by road during that period when due to bad weather conditions air service also becomes uncertain and even risky It has therfore been proposed to make the road an all weather one by driving a tunnel through the snow capped mountains at an elevation of about 7 000 feet

The work of the construction of tunnel which will be 8 100 feet long has been awarded to M s Baresel and Kunz a German Firm on very competitive rates The tunnel will consist of two tubes each 16 6 wide and 18 2 in height One of the tubes will be used for the up traffic and the other for the down traffic The cost of the tunnel work only will be nearly Rs 2 14 crores The total cost of the tunnel including ventilation and other ancilliary works is expected to be about three crores of rupees

The work on the tunnel is proceeding satisfactorily and one tube is expected to be ready by 30 11 56 *The remaining work will be completed by 1 4 1958*

(c) **BRIDGES ON NATIONAL HIGHWAYS 5 & 6**

Kathjuri & Kuakhai Bridges

The construction of two reinforced cement concrete bridges over the Kathjuri and the Kuakhai tributaries of the Mahanadi river where the National Highway No 5 (Calcutta Madras) crosses them was given high priority by the Government of India which asked this Department to *handle the job*

The bridge over Kathjuri river is 2820 feet long and consists of 17 spans of 160 feet each It is the longest R C C bridge made so far in India and has been built at a cost of about 45 lacs of rupees

The bridge over the Kuakhai river is 1696 feet long and consists of 15 spans of 160 feet each with end cantilevers of 53 each It has been built by this Department at a cost of 23 lacs of rupees

Bridges over Brahmani, Baitarani and Subarnarekha rivers on N H 6

Construction of bridges over these rivers is under progress Brahmani Bridge is almost complete and it will be opened to traffic very soon Work on the bridges over Baitarani and Subarnarekha rivers is in progress and is likely to be completed by the end of 1956

Brahmani bridge is 1850 feet long and will cost about Rs 15 7 lacs

Baitarani bridge is 555 feet long and will cost about Rs 18 6 lacs

Subarnarekha bridge is about 720 feet long and will cost about Rs 11 00 lacs

Bethari bridge on river Cawery

Bethari bridge of the submercible arch type across the river Cawery at Bethari in mile 12/2 of the Mercara Virajpat road in Coorg was completed in June 1955 at a cost of Rs 2 4 lacs This makes the existing Mercara Virajpet Road an all weather one and thus reduces the length of the old circuitous road from Virajpet to Mercara by 9 miles It is made of masonry arches resting on abutments and piers of stone masonry

II FACTORIES

Sindri Fertilizer Factory

This Department executed all the civil engineering works for the Sindri Factory consisting of factory buildings storage sheds administrative office blocks and other structures like hospital school club etc The entire work entrusted to this Department was completed in 1950 at a cost of about 3 0 crores of rupees

Hindustan Cables Factory, Rupnarainpur

The Department was associated with the construction of the technical buildings as well as residential buildings at Rupnarainpur near Chittaranjan for the Telephone Cables Factory Work on this factory was started in 1952 and has since been completed and the factory gone into production

What was once a barren land has been developed into a separate self contained colony laid out according to a Master Plan The workshop structure at this factory is of welded steel construction The total cost of the works executed at the factory is about Rs 13 lacs

Machine Tools Factory, Jalahali

This Department erected four hangars and constructed annexes etc for the Machine Tools Factory at Jalahali at a total cost of about Rs 10 lacs

The work of ventilating the Bellman and Butler hangers is also being done and it is expected to be completed this year

Penicillin Factory, Poona

Construction of buildings for the Penicillin Factory at Poona was entrusted to this Department in 1952 The main buildings have already been completed and the factory has gone into production Additional residential quarters general stores rest house and community centre are under construction

The factory has been provided with an independent water supply system with filteration plant over head tanks etc A special sewage disposal plant for the treatment of industrial waste from the factory has also been completed The total cost of construction of the buildings for this project is about Rs 57 lacs

Government of India Press, Nasik

The Press was inaugurated on 31 10 1955 by Sardar Swarn Singh Union Minister for Works Housing & Supply Work on 642 quarters of various types for the staff of the Press is in progress and is expected to be completed by May 1956 Construction of the forms wing costing Rs 4 lacs is in full swing and will be completed by March 1956

New Mint, Calcutta

Construction of buildings like workshop administrative block residential quarters for a new Mint at Calcutta was started by this Department in the year 1941 This work was held in abeyance at the outbreak of war with Japan The work was however resumed in February 1948 and completed in 1950 The total expenditure incurred on it was Rs 110 0 lacs

The workshop is a very large structure giving a plinth area of over 2 lacs square feet Strong rooms with heavily reinforced cement concrete walls floors and roofs have been constructed for the storage of metal and coins The workshop is also provided with air ducts for forced ventilation

National Instruments Factory at Calcutta

This is a project costing about Rs 38 0 lacs and was sanctioned by Government of India in the Ministry of Production in December 1952 There are several buildings under construction in connection with this project The main workshop building covering an area of 38 000 square feet and costing Rs 5 2 lacs is almost complete Foundry and timber store dispensary canteen and cycle shed are under construction The administrative building is a three storeyed R C C framed structure with five storeys This covers an area of 71 620 square feet and costs about Rs 10 lacs The work is in full swing and is expected to be completed by August 1956

D D T Factory at Delhi

This Department constructed the D D T Factory at Delhi at a cost of about Rs 5 lacs which is capable of producing 1400 tons of D D T per year Production in this factory started early this year

Government of India Press at Faridabad

This Department is constructing the Government of India Press at Faridabad at a cost of Rs 23 32 lacs The entire project is almost complete

III INSTITUTIONS

Marine Engineering College, Calcutta

Construction of buildings for the Marine Engineering College Calcutta consisting of main college building workshop hostels for cadets and apprentices and residential quarters for the staff was taken in hand by this Department in 1951 The construction was completed in 1953 and the Institute was officially inaugurated by the Prime Minister in December 1953 The total cost of this project was Rs 33 7 lacs

Indian Institute of Technology at Hijli

The construction of the main Institute building hostels staff quarters etc for the Institute of higher technology at Hijli was entrusted to this Department in 1950 Major portion of the work has already been

completed and the Institute has started functioning The construction of the remaining portion of the main building is almost complete The work on residential accommodation for the staff and students is in progress

The cost of construction of the main Institute building alone is Rs 74 lacs The total cost of the project when completed will border on Rs 2 25 crores

Indian School of Mines at Dhanbad

Extension to the school building and construction of additional hostels were taken in hand by this Department in 1948 and completed in 1951 In addition to these a number of residential quarters was also constructed *Total cost of the works executed for the school is about Rs 17 lacs*

All India Medical Institute

This Department has been entrusted with the work of developing a 150 acre plot and constructing thereon All India Medical Institute at New Delhi Residential quarters have almost been completed Construction of the main building which will be a R C C framed structure of 10 storeys has also started *The entire project is estimated to cost about Rs 3 33 crores*

College building at Mercara

A first class building for a first grade college for the Coorg State at Mercara has been constructed by this Department at an approximate cost of Rs 10 lakhs

Sugarcane Breeding Institute at Coimbatore

Construction of a laboratory block for Sugar Cane Breeding Institute at Coimbatore has been started The estimated cost of the project is Rs 6 0 lacs

IV POST & TELEGRAPHS WORKS

Automatisation of telephones at Calcutta

A large number of telephone exchange buildings in different parts of the city has been constructed by this Department for the automatisation of Telephone scheme at a total cost of Rs 180 lacs

The Bank and City exchange building the most important in the chain of these Exchanges is situated in Dalhousie Square It has 10 storeys and is one of the highest buildings in Calcutta The total cost of this building alone is over Rs 100 0 lacs

Telegraph Training Centre at Jubbulpore

Construction of building for the training centre capable of admitting about 800 students was taken in hand in December 1951 and completed in April 1954 at a total cost of Rs 16 lacs This is a double structure with a frontage of 500 feet

A hostel (costing about Rs 10 lacs) for providing accommodation to 250 students is almost complete

Telephone Exchange Building at Bangalore

A telephone exchange building has been constructed at Bangalore at a cost of Rs 6 lakhs This work was started in December 1951 and completed in March 1953

Telephone Exchange Building at Hyderabad

Two telephone exchange buildings one at Secunderabad and the other at Saifabad near Hyderabad have been constructed at a total cost of about Rs 8 lacs

Telephone Exchange Building at Tis Hazari, Delhi

A building to accommodate a telephone exchange has been constructed at Tis Hazari in Delhi at a cost of about Rs 3 37 lacs

G P O and P & T Department Office in New Delhi

Multi storeyed building for the General Post Office and office of the P & T Department is being constructed on the Parliament Street New Delhi at a cost of Rs 26 lacs

Construction of building for Foreign Post Office at Mathura Road, Delhi

In order to ensure quick disposal of foreign parcels which are to be checked up by customs authorities a double storeyed building has been constructed on the Delhi Mathura Road at a cost of Rs 3 90 lacs

V HOUSING & DEVELOPMENT SCHEME

In Delhi this Department handled a very gigantic scheme of developing land for housing the displaced persons from West Pakistan and also for providing residential accommodation to the staff of the Central Government An area of over 4581 acres of land has been developed and provided with services at a cost of about Rs 5 32 crores Colonies like Man Nagar Shan Nagar Seva Nagar Vinaynagar and Kaka Nagar were developed for the residential flats for the Central Government servants Sunder Nagar Golf Links Jorbagh Nursery and part of Chanakya Puri were developed and laid out for sale to the public for putting up their own houses Rehabilitation colonies like Rajinder Nagar Patel Nagar Moti Nagar Tilak Nagar Tehar Nizamuddin Jungpura Lajpat Nagar Kalkaji Malvia Nagar Malka Ganj etc were built up for housing the displaced persons Part of Chanakya Puri has been earmarked for the construction of Embassy buildings and Chanceries by foreign Diplomatic Missions This area has been planned and developed to a high standard in view of its special importance

To cater to the needs of such huge extensions to the city the existing services had to be augmented The existing systems of bulk water supply sewage and roads have been strengthened and enlarged to cope with the increased demands A large number of reservoirs on the ridge with adequate pumping arrangements have been built Capacity of water treatment plant has been increased An additional trunk sewer for the southern areas has been laid Portions of the ring road to provide through communication between colonies and from the outlying colonies to the City have also been completed

Simultaneously with the development of land this Department has constructed over 9 664 houses for Central Government servants and over 34 420 houses and tenements for the displaced persons Expenditure incurred on the construction of these is of the order of Rs 18 5 crores

At present construction of over 5 954 houses for Government servants and 2 916 houses and shops for displaced persons is in progress

The question of providing residential accommodation for the staff of the Central Government in important cities like Calcutta and Bombay also has been taken up by the Ministry of Works Housing and Supply Government have sanctioned the construction of 466 quarters of various categories in n at a cost of Rs 52 97 lacs There the work on 375 quarters is in progress and i pected to

pleted by March 1956 In Bombay work on 433 quarters of various categories has been started at Ghat Kooper This scheme which is estimated to cost Rs 57 4 lacs will be completed in a year s time

VI OFFICE BUILDINGS

In Bombay the Central Government Office building on Queens Road was extended in 1950 51 at a cost of Rs 15 lacs to provide additional office space of 36 000 square feet Also first phase of the seven storeyed office building costing Rs 42 44 lacs and providing a carpet area of 1 28 650 square feet has been completed recently on the Queens Road Work on the second phase of this building costing Rs 27 99 lacs and yielding carpet area of 92 000 square feet has been started recently and is expected to be completed in two years time

A 5 storeyed office building (giving a carpet area of 1 14 700 sft) for the Accountant General Madras is being constructed at an estimated cost of Rs 22 0 lacs and will be completed in about a year s time

At Ahmedabad the first phase of the Income Tax Office Building has been completed and work on the second phase is in progress This portion of the building is four storeyed and will provide a carpet area of about 11 200 square feet and is expected to be completed in about 6 months time

In Delhi a multi storeyed building on the Delhi Mathura Road has been completed at a cost of Rs 41 42 lacs for the C B R

Work on the construction of office building for the A G C R on Delhi Mathura Road has also been taken in hand at a cost of Rs 35 76 lacs Work on the construction of office building for the Comptroller and Auditor of India on Delhi Mathura Road has been taken in hand at an estimated cost of Rs 11 18 lacs

First phase of the multi storeyed office building on the Queen Victoria Road has already been completed while work on its second phase estimated to cost about 35 8 lacs has been taken in hand Work on both phases of the multi storeyed office building on the King Edward Road estimated to cost Rs 34 60 lacs and 41 36 lacs respectively has also been taken in hand

Multi storeyed building for the A I R estimated to cost Rs 29 53 lacs and a multi storeyed building for G P O and other P & T Offices costing about Rs 26 00 lacs are also being constructed on the Parliament Street in New Delhi

At Bhubaneswar we are constructing office and residential accommodation for the Accountant General Orissa at an estimated cost of 59 lacs

At Tatanagar we have recently started work of constructing Metallurgical Inspectorate offices and Laboratory at an estimated cost of 12 8 lacs

VII COURT BUILDINGS

Supreme Court at New Delhi

This Department has undertaken the construction of a three storeyed building for the Supreme Court of India New Delhi near the Hardinge bridge The total cost of costruction of this building will be Rs 45 lacs

Court Building at Tis Hazari, Delhi

The Court building is being constructed at Tis Hazari Delhi to house 72 courts including the Administrative offices of the State It will also accommodate offices of the Deputy Commissioner Magistrate

Prosecuting D S P , Public Prosecutor, Registration Custodian Records etc The entire building is estimated to cost about Rs 99 lacs

VIII RESEARCH INSTITUTE

This Department was entrusted with the construction of residential quarters required for the staff of the Research Institutes set up by the Ministry of Natural Resources and Scientific Research at various places A large number of quarters at Digwadih Tatanagar Poona and Calcutta have been constructed at an aggregate cost of about Rs 44 5 lacs

Tobacco Research Station at Rajahmundry

A number of buildings for this Research Station were constructed by this Department at an estimated cost of Rs 5 lacs in 1952 A building for the Institute costing Rs 5 9 lacs is nearing completion now

Indian Council of Agricultural Research

Two hostels for 220 students each have been constructed for the Indian Agricultural Research Institute in New Delhi at a cost of about Rs 9 lacs

A cold storage for fish was constructed at Bombay in the year 1950 51 at an estimated cost of Rs 5 75 lacs It was designed to hold 250 tons of frozen fish and 40 tons of unfrozen fish

IX ALL INDIA RADIO WORKS

A building for housing a 10 Kwt Transmitter was constructed at Gauhati at a cost of about Rs 2 2 lacs In 1954 a 50 Kwt Medium Wave Transmitter Station building was constructed at Malad Bombay at a cost of Rs 10 lacs In the same year a building for housing a 50 Kwt Transmitter Station was constructed at Ahmedabad at an approximate cost of Rs 6 26 lacs

A Studio building at an estimated cost of Rs 2 5 lacs has been constructed at Madras

A building for Transmitters at Jullunder has been completed recently at a cost of about Rs 2 0 lacs

In addition a 50 Kwt Transmitter building at Lucknow (3 31 lacs) a 20 Kw Transmitter building at Avadi Madras (2 04 lacs) a 20 Kw Transmitter building at Indore (1 53 lacs) a 50 Kw Transmitter building at Banglore (5 35 lacs) a 100 Kw High Power Transmitter building at Malad Bombay (13 71 lacs) a 100 Kw Short Wave Transmitter building at Avadi Madras (10 83 lacs) and a 10 Kw Transmitter building at Gauhati (2 2 lacs) have been constructed recently by this Department

Apart from the above work on Studio Blocks for the A I R at Calcutta (4 02 lacs) Madras (4 92 lacs) Gauhati (6 39 lacs) and Ahmedabad (4 06 lacs) and Transmitter buildings for the A I R at Delhi (8 21 lacs) Guntur (Andhra) (2 29 lacs) Trichur (2 07 lacs) has been started

X AERODROMES

(A) **Maintenance**

On behalf of the Director General Civil Aviation the Central Public Works Department is maintaining all over India 3 International Aerodromes 8 Major Aerodromes 33 Intermediate and 36 minor Civil Aerodromes

(B) **Construction of Runways at Airfields**

At Dum Dum aerodrome (Calcutta) a new runway 7000 feet long 150 feet wide designed to take heavy aircraft has been constructed at a cost of Rs 52 lacs This runway has been built to the International

Civil Aviation Organisation standards Similarly the over runs of the N S Runway are being extended at a cost of 1 031 lacs

At Santa Cruz aerodrome (Bombay) the exiting main runway had first been extended to 700 feet and strengthened at a cost of Rs 31 lacs to take heavy aircraft with isolated wheel load of 60 000 lbs at a cost of Rs 21 63 lacs It is now being extended still further to meet the requirements of fully loaded Super Cons tellation aircraft

At Gauhati in Assam State a new water bound macadam runway 4500 feet long was constructed in 1952 53 at a cost of Rs 8 lacs It has now been strengthened with 8 thick cement concrete slabs at a total cost of Rs 14 19 lacs

At Bagdogra near Darjeeling (West Bengal) a new runway 4200 feet long and 150 wide was construct ed in 1952 53 at a cost of about Rs 10 lacs

At Mangalore a runway was constructed in 1953 at a cost of Rs 4 84 lacs

Provisional airstrips with the use of pierced steel plankings were constructed in 1953 at Kailashahar Kamalpur Khowai and Belonia in Tripura State Balurghat in West Bengal and Sheela in Assam Pucca Runways are now being built at Kailashahar Kamalpur and Ballurghat at costs of Rs 8 77 lacs 6 66 lacs and 6 78 lacs respectively

Construction of the runway at the new aerodrome at Chandigarh (Punjab State) was completed at a cost of Rs 6 lacs and put into operation in October 1955 The work of constructing runways at Udaipur and Kandla costing Rs 3 72 and 7 57 lacs respectively is in progress Construction of runways at Kurnool Tulihal Lilabari Cooch Bihar Muzaffarpur Haldwani and Jogbani are being taken up

The runway at Madras is being strengthened by laying 6 thick cement concrete slabs at a cost of 13 82 lacs to meet the requirements of modern heavy aircraft

(C) Construction of Terminal Buildings at Aerodromes

Terminal buildings at Lucknow Amritsar Nagpur Gauhati and Bagdogra airfields have been com pleted by this Department at costs of Rs 2 lacs 1 5 lacs 6 5 lacs 3 02 lacs and 3 02 lacs respectively The work of constructing Terminal Buildings at Santa Cruz (5 0 lacs) is in progress while that at Kailashahar (2 74 lacs) Kamalpur (2 3 lacs) Khowai (2 12 lacs) Belonia (2 12 lacs) Rupsi (3 32 lacs) and Tiruchari patta (5 57 lacs) is being taken up

(D) Construction of Residential Quarters at Aerodromes

A large number of residential quarters have been constructed for the essential staff working at the aerodromes at Dum Dum Santa Cruz Bagdogra Gauhati Nagpur Madras Ahmedabad Amritsar Luck now Rajkot and Bhubaneswar at an aggregate cost of Rs 96 lacs Further work of constructing residential accommodation at Santa Cruz Dum Dum Rupsi Bagdogra Tezpur Gauhati Mehandari Jhersugada Kamalpur Kailashahar Khowai Belonia Chandigarh Udaipur Kandla Chakulia Allahabad Madras Trichurapalli Mangalore Agartalla and Lillabari is in progress

(E) Constrution of Wireless Transmitting Stations at Aerodromes

W T Stations have been completed at Bombay Calcutta Gauhati and Rajkot New W T Stations are being constructed at Chakulia Gauhati Bagdogra Banaras Allahabad Bhavnagar Parbodar and Keshod airfields

(F) **Construction of Central Power Houses at Aerodromes**

Central Power Houses are being constructed at Ballurghat Gauhati, Tezpur Rupsi Lillabari Kamlashahar Kailashahar and Khowai airfields

(G) **Ground Lighting facilities for Night Flying at Aerodromes**

Ground lighting facilities are being provided at most of the airfields to facilitate night landing The work at Dum Dum (Rs 10 lacs), Santa Cruz (Rs 10 lacs) and Nagpur (Rs 7 5 lacs) has been completed While the work at Safdarjung (Rs 3 30 lacs) Lucknow (Rs 2 36 lacs) Gauhati (Rs 3 50 lacs) Agartala (Rs 3 0 lacs) Jaipur (Rs 3 55 lacs) Allahabad (Rs 3 70 lacs) Trichurapalli (Rs 2 68 lacs) Gaya (Rs 2 55 lacs) Rajkot (Rs 2 55lacs) Mangalore (Rs 0 74 lacs) Gorakhpur (Rs 0 74 lacs) Coimbatore (Rs 0 57 lacs) Kotah (Rs 0 54 lacs) Warrangal (Rs 0 76 lacs) Palam (Rs 10 lacs) Amritsar (Rs 3 97 lacs) and Bhuj (Rs 3 0 lacs) is in progress

(H) **Provision of Electric Supply Mains at Aerodromes**

The work of providing electric supply mains has been sanctioned by the Government of India for Bagdogra Banaras Bhubaneswar Gaya Jabbalpur Lalitpur Passighat Mohanbari and Chakulia airfields and it will be started shortly

(I) **Miscellaneous works at the Aerodromes**

(*i*) Construction of Yellow Fever Hospitals at Santa Cruz and Dum Dum has been completed While the work of constructing a similar Hospital at Madras is being taken up

(*ii*) Hangers of different sizes and types are being erected at Santa Cruz Allahabad Bagdogra Dum Dum Jaipur and Mohanbari airfields

(*iii*) The work of providing additional accommodation at G A T C Safdarjung is in progress

(*iv*) Installation of obstruction lights on tall chimneys of Mills at Ahmedabad and on Hill tops near Santa Cruz airfield was completed in 1953 54 The work of installing obstruction lights on Parasnath Hills near Gaya and on some more hills near Santa Cruz is going to be taken up shortly

XI WATER SUPPLY SCHEME FOR AJMER

For providing increased water supply to Ajmer this Department executed during 1949 52 a Scheme costing Rs 37 5 lacs This scheme consisted of the construction of 15 wells each of 25 feet diameter and 50 feet depth in the Saraswati river valley at Ganehra about 8 miles away from Ajmer With the completion of this scheme the supply of water has increased from 10 lacs to 28 lacs gallons per day which ensures the supply of 14 gallons of water per capita per day

A similar scheme to provide increased water supply for Beawar town which is the next biggest town in Ajmer State is nearing completion The estimated cost of this scheme is Rs 12 lacs

XII GRAINS STORAGE GODOWNS

This Department renovated during the period 1952 54 the wartime buildings constructed at Manmad which were taken over by the Ministry of Food and Agriculture at a cost of about Rs 12 5 lacs for the storage of foodgrain

Six foodgrain godowns have been constructed at Jhinjirapole in Calcutta for the Ministry of Food and Agriculture at a cost of Rs 27 lacs Four of them are of the size 90 ×39 and the remaining two 405 ×90 and 435 ×70

The work of constructing foodgrain godowns on timber pile foundations has also been started at a cost of Rs 14 87 lacs in Willingdon Island, Cochin

XIII INDIAN INDUSTRIES FAIR GROUNDS, NEW DELHI

This Department has developed a 61 acre plot on the Delhi Mathura Road and laid services therein and also built up a permanent octagonal Pavilion Building giving a carpet area of exhibition space of about 44 000 square feet at a cost of Rs 15 lacs for the Indian Industries Fair recently held in New Delhi

XIV HEALTH CENTRES

An Urban Health Centre with staff quarters has been completed at Calcutta at a cost of Rs 5 1 lacs Sub health Centres have been constructed at Nasibpur and Paltagarh for giving practical training in Hygiene and Public Health A hostel along with staff quarters has also been constructed at Singur at a cost of Rs 6 78 lacs for accommodating 60 students undergoing training in the Sub health Centre

XV GENERAL

In addition to the above mentioned works this Department has carried out numerous other works for various Ministries of the Government of India all over the country

To any observer the vastness of the construction activity of this Department will be quite evident Besides constructing roads and buildings this Department looks after Government property and maintains Central Government buildings throughout the country

Lowering of costs of construction of buildings is continuously engaging the attention of the Government and the Department A Committee of Experts was appointed to go into the question of effecting reduction in the standards of accommodation and cost of construction and their recommendations have been adopted in the construction of new buildings

This Department took a leading part in the organisation of the low cost International Housing Exhibition held in New Delhi in 1954 The behaviour of the houses put up at that Exhibition is being watched carefully by a team of officers from the Research Station at Roorkee to see as to which type of house is the best suited for particular conditions of climate

HOUSING

I SUBSIDISED INDUSTRIAL HOUSING SCHEME

THE post independence era had witnessed a series of efforts to relieve the housing distress in the country Top priority had necessarily to be accorded to the requirements of industrial workers and the Subsidised Industrial Housing Scheme came into operation in September 1952 Sanctions amounting to nearly Rs 22 crores have been issued till the end of December 1955 for the construction of about 78 000 tenements Out of this amount loans of Rs 1025 lakhs and subsidies of Rs 969 lakhs have gone to the State Governments for the construction of 65 982 tenements private employers got loans and subsidies amounting to Rs 99 lakhs and Rs 72 lakhs respectively for 10 892 houses and Co operative Societies of workers have been sanctioned loans amounting to Rs 17 lakhs and subsidies amounting to Rs 9 lakhs for 1,318 tenements The construction of over 34 000 houses has been completed the rest are in various stages of construction and are likely to be completed by 31st December 1956 Payments (which are disbursed in a few instalments roughly related to the progress of construction) to the extent of Rs 694 lakhs towards loans and Rs 307 lakhs towards subsidies have been authorised till the end of December 1955

2 In addition projects involving the construction of nearly 9 000 tenements at an estimated cost of Rs 250 lakhs are under consideration and are likely to be sanctioned in the near future

3 Apart from the progress achieved in the working of the Scheme a number of modifications of far reaching importance have been introduced in the Scheme during the years 1954 and 1955 As a result of these improvements given below construction of more and better type of houses may be expected under the Scheme —

(i) Extension of scope of Scheme to mine workers (other than those employed in coal and mica mines for whom there are separate Schemes administered by the Ministry of Labour) governed by the Mines Act 1952

(ii) Availability of aid for two roomed tenements on the same general lines (on enhanced basis) as for one roomed houses

(iii) Liberalization in the mode of payment of sanctioned assistance to the Co operative Societies in such a manner that lack of initial capital does not stand in the way of their undertaking construction work and

(iv) Formulation of an arrangement whereby the State Governments can construct houses in the first instance and then sell them to workers on a hire purchase basis

2 LOW INCOME GROUP HOUSING SCHEME

The Low Income Group Housing Scheme announced in November 1954 promised for the first time financial assistance on convenient and reasonable terms to those with low incomes who are desirous of building their houses Financial assistance under the scheme is given in the form of loans through the State Governments (at about 4½% per annum) to individuals and co operatives of low incomes (i e whose incomes do not exceed Rs 500 per month) and is repayable in annual equated instalments over a period of 30 years Upto 80% of the cost of building the house (including land) subject to a maximum of Rs 8 000/ can be disbursed under the Scheme The Scheme also provides for —

(i) the grant of loans by the Centre to State Governments (in addition to those for the building of houses) for the acquisition and development of sites at an interest of about 3½% repayable in three years The plots have to be sold within this period to prospective housebuilders on no profit no loss basis

(ii) the construction of houses by the State Governments direct but all such houses have to be sold either outright or on a hire purchase basis to co operatives or individuals

(iii) the grant of assistance to local bodies for constructing houses for allotment to their low paid employees on payment of rent Loan assistance in this case also will be limited to 80% of the cost of the house but subject to a maximum of Rs 2 600 only (The total allotment of loans for local bodies for the purpose is not to exceed 25% of the total loan made available to the State Governments under this Scheme)

Assistance is payable in suitable instalments related to the progress of the construction

2 The total loan allocations made to 25 State Governments so far for the remaining period of the First Five Year Plan i e upto the end of March 1956 amount to Rs 2108 2 lakhs Against these allocations a sum of Rs 606 2 lakhs has been actually paid to the various State Governments as loan till the end of

December 1955 The loan allocations and disbursements made to the different State Governments are shown in the statement attached as Appendix I

3 MIDDLE INCOME GROUP HOUSING SCHEME

A separate scheme for the grant of house building loans to the middle income groups has been under consideration of Government of India The basic feature of this scheme is that a major portion of the finances required for the purpose will be provided by the Insurance Companies who will also operate the scheme themselves in appropriate association with Government The amount of loan will be limited to 80% of the cost of land and building subject to a maximum of Rs 25 000 It is hoped that the final scheme will be announced and implemented within the next few months

4 SLUM CLEARANCE AND SWEEPERS' HOUSING

The question of slum clearance and sweepers housing had been engaging the attention of Government of India for quite some time but it was not possible to do anything tangible on account of the fact that the low rent paying capacity of slum dwellers and sweepers called for heavy subsidies which could not be made available during the first Plan period because of competing claims of other development schemes on the limited resources available

It has now been decided however to make a beginning in these fields with a provision of Rs 20 crores in the Second Five Year Plan As slum clearance and sweepers housing are essentially a local responsibility the pattern of financial assistance proposed is —(i) 25% of the cost to be given by the Centre as subsidy with an equal amount to be found by the State Governments as a matching subsidy, and (ii) the balance 50% of the cost to be advanced by the Centre as loan

It is realised that this modest provision which the Centre has been able to set apart for the purpose is hardly adequate to deal effectively with the problem but it does represent an advance on the current state of affairs and it is hoped that some of the worst slums at least in the larger towns will have been cleared by the end of the next Plan Much will of course depend on the enthusiasm that the State Governments may evince in the formulation of their slum clearance and sweepers housing programmes with the aid now proposed to be made available It must however not be forgotten that the construction of tenements for industrial workers under the Subsidised Industrial Housing Scheme also contributes in some measure in the clearance of slums particularly in industrial towns

5 PLANTATION LABOUR HOUSING SCHEME

Even though the Plantation Labour Act 1951 makes it obligatory on every employer to provide and maintain for all workers and their families residing in plantations necessary housing accommodation most of the planters particularly the smaller ones could not fulfil their obligations mainly on account of inadequate financial resources In response to their demand for central assistance a Plantation Labour Housing Scheme has now been drawn up for implementation during the Second Five Year Plan and a provision of Rs 2 crores has been made in the Plan for the purpose Assistance is proposed to be given to planters through State Governments in the shape of interest bearing loans to the extent of 80% of the cost of houses on much the same lines as contained in the Low Income Group Housing Scheme

6 RURAL HOUSING

Rural Housing is essentially the responsibility of the State Governments as has been indicated in the Five Year Plan The role of the Centre is purely advisory in character which restricts the responsibility to

the extent of giving a lead in the matter of rural housing development In consonance with the objectives of such a role a Rural Cell has been established in the Ministry of Works Housing and Supply with a Housing Adviser and a small nucleus staff for the purpose of giving technical assistance and advice to the C P A the various State Governments and other interested authorities The Cell has been functioning for nearly two years now and within this period, it has been possible for it to publish a Draft Manual on Rural Housing containing various type designs for residential units lay out plans for villages, Panchayat Ghars, wells latrines health centres etc with short notes on construction and building materials The Rural Cell has also been giving technical advice and assistance to various authorities over the country Among the items of work carried out by the Cell, the following are particularly noteworthy —

A design for village chora (Community meeting place) prepared for the Community Project Administration type designs for an extension training centre in the Mechanised Farm at Bhopal prepared for the Ministry of Food and Agriculture a plan for single roomed and two roomed rural houses along with specifications and costs prepared and forwarded to Backward Classes Commission lay out plans for training centre and type designs for residential houses, together with advice and necessary information to Literacy House Allahabad a philanthropic organisation devoted to the cause of promoting adult literacy, efforts to help the Resettlement Section of the Ministry of Defence information and advice to Principal Engineering Officer, Rewa Project Execution Officer Sumerpur etc etc

The development of certain model villages in the Community Project and N E S Blocks on aided self help basis has been taken on hand As a pilot project the development of Shamspur in Punjab Alampur in PEPSU Akola in U P and Sundravali in Rajasthan are being considered first Designs lay outs etc have been prepared in consultation with local authorities work in Shamspur is already in progress after completion of all initial arrangements work is expected to start shortly in Alampur and as regards the other two villages the matter is under correspondence with the State Governments concerned If the experiment is successful it is hoped that these model villages will provide the necessary impetus and initiative for the villagers and local authorities in contiguous areas and elsewhere for improvement of housing conditions in rural areas

As things stand it does not seem to be possible for the Centre to give financial aid in any considerable measure Nevertheless some assistance is being provided in the shape of loans under the aided self help programme of the C P A and since many of the villagers happen to be Harijans or belong to other backward classes they are entitled to some measure of financial assistance in the shape of Grants in aid administered by the Ministery of Home Affairs (Commissioner of Scheduled Castes and Scheduled Tribes) In the Second Five Year Plan a modest provision of Rs 5 crores has been made to be advanced by the Centre in the shape of loans to villagers through C P A or State Governments towards development of model villages

7 NATIONAL BUILDINGS ORGANISATION

One of the important problems facing Government so far as Housing is concerned is the reduction of building costs which are admittedly very high at present The National Buildings Organisation set up by the Ministry of Works Housing & Supply in July 1954 is intended to provide the means and machinery for achieving this end as far as possible The essential functions of this Organisation are to collect and disseminate useful information on building science techniques and materials formulation and co ordination of research problems on cheaper and better building materials and techniques standardisation of building legislation bye laws techniques and materials etc Since the field of activity is vast and complicated pro-

Appendix 1

LOW INCOME GROUP HOUSING SCHEME

Latest position as on 31 12 1955

S No	Name of the State Government	Amount sanctioned (in lakhs Rs)	Amount disbursed so far (in lakhs)
1	Punjab	300 0	221 0
2	Uttar Pradesh	300 0	65 0
3	Bombay	225 0	—
4	West Bengal	200 0	40 0
5	Madhya Pradesh	151 0	65 1
6	Madras	81 0	17 74
7	Andhra	74 0	10 0
8	Bihar	10 0	2 7
9	Assam	10 0	—
10	Orissa	3 0	—
11	Rajasthan	100 0	20 0
12	Mysore	100 0	10 0
13	Hyderabad	100 0	10 0
14	Madhya Bharat	70 0	23 33
15	PEPSU	41 0	41 0
16	Saurashtra	25 0	5 0
17	Travancore Cochin	15 0	3 0
18	Jammu & Kashmir	35 0	—
19	Delhi	200 0	55 0
20	Ajmer	20 0	4 0
21	Himachal Pradesh	20 0	5 0
22	Bhopal	10 0	4 25
23	Vindhya Pradesh	9 0	4 50
24	Coorg	6 0	—
25	Kutch	3 2	—
	Total	2108 2	606 62

gress is bound to be slow Notwithstanding initial difficulties the organisation is at present engaged in a number of activities in fulfilment of its objectives The following are noteworthy examples N B O *Journal* which came into existence in December 1955 will be of considerable educative value to those who are interested in the building trade and practice *Development of Gypsum as a building material*—the experimental manufacture of Gypsum Boards (on cottage industry basis) undertaken by the N B O and the investigations of a Working Group on Development of Gypsum Experimental Manufacture of Hollow bricks efforts to standardise certain building materials in collaboration with the I S I etc





Bakshi Ghulam Mohammad
Prime Minister Jammu and Kashmir State

KASHMIR ON THE ROAD TO PROSPERITY

A MENTION of Kashmir conjures up in our minds the picture of a land of beauty peace and plenty From ancient times it is associated with soft beautiful shawls fragrant saffron and luscious fruit The snow capped mountains which send down cool breezes to the Valley below the rich forests of pine and deodar the peaceful meadows calm and placid lakes with luxurious houseboats and cosy shikaras playing over their silken waters and the broad bosomed Jhelum winding her leisurely way from Anantnag to Baramula have all been the themes of poets and writers from time immemorial

But there is another side to this picture—ugly and grim Poverty and ignorance stalk this land in the womb of the Himalayas The State *does not comprise only the famous Valley To its north lie the arid* regions of Ladakh with large tracts of mountainous table land no part of which is less than 12 000 ft above sea level Inhabited by people belonging to the Mongol race Ladakh has its own problems—social and economic To the south of the Valley is the Jammu province inhabited by the brave Dogras Comprising undulating hills and a few side valleys it is a region of scanty rainfall and has no irrigational facilities Though possessing mineral wealth no attempt has so far been made to exploit it

The insulated nature of the State adds enormously to the problems facing its various regions Surrounded by the mighty Himalayas in the North the Karakoram in the West and the Pir Panjal in the South the State is difficult of access particularly during the winter months It was only in the beginning of the present century that the Valley was opened to wheeled traffic when two roads the Jhelum Valley and the Banihal were built But even then Ladakh and portions of Jammu remained cut off No wonder that in times of scarcity there was a fearful loss of human life

Over a hundred years ago the State was consolidated into one political unit by Maharaja Gulab Singh For centuries each part of the State had seen political domination by ruthless conquerors with the

HEROES OF KASHMIR FRONT



Lcle Lt Ranjit Rai



Late Brig Usman





result that the people were reduced to the lowest depths of poverty and ignorance But they never lost their moorings Although belonging to different ethnic religious and linguistic divisions they retained a strong cohesion cemented closer by adversity and suppression

Fettered by numerous social and political evils the people of this State have been eking out a precarious existence for centuries past To raise their standard of life calls for an intensive effort by the Government and the people themselves Each region has its own economy Ladakh being on the caravan route between India and Central Asia and Tibet depends mainly upon the entrepot trade passing through it Besides this the people there are engaged in cultivating a few patches of land irrigated by rivulets here and there Sheep breeding and wool trade is also a source of income to a good portion of its population

The people living in the Valley proper depend mainly on agriculture—80% of its population being engaged in it The agricultural system is primitive and all efforts at improving it in the past were hampered by the apathy and ignorance of the cultivators and a class of landlords who appropriated major portion of the produce to themselves

The rest of the people are engaged in production of art goods like shawls wood carving papier machie, carpets etc A large proportion of the urban population and boatmen depend on the increasing tourist traffic to the Valley

In Jammu the Rajputs take to soldiering and used to be enlisted in large numbers in the State and British Indian armies For the rest of the people agriculture is the main occupation

Occasional surveys have, however revealed that Jammu province is rich in coal and lignite There is also a possibility of iron ore being found there

Struggle for Freedom

To fight poverty and ignorance the first requisite was the attainment of political freedom Influenced by the freedom struggle in India carried on under the leadership of the Congress Kashmiris rose against the rule of the Maharaja in 1931 Thanks to their broad nationalistic outlook result no doubt of a composite cultural heritage the movement was directed early into healthy channels In 1939 the National Conference came into existence and received the blessings of Sri Jawaharlal Nehru who attended its inaugural session

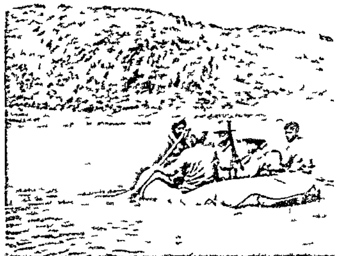
By 1946 the National Conference was a strong force When as a result of their heroic struggle the people of the State were hopefully looking forward to a peaceful transfer of power to them they were suddenly called upon to face a new danger from quite an unexpected direction

Seized by ambition to acquire the State by force of arms Pakistan encouraged and abetted a ruthless invasion of the State by tribesmen in October 1947 Happenings of the two eventful years which saw the heroic deeds of the Indian Armed Forces in repelling this attack and saving the people of the State from fire and sword are still fresh in our minds The invasion turned Kashmir into a theatre of war resulting in the destruction of life and property and what was more unfortunate created the problem of the rehabilitation of a huge number of displaced persons from the Pak occupied areas of the State Roads and bridges were destroyed and dislocation in trade and agriculture took place in large areas The tourist traffic was dead adding to the alreadv heavy problems which faced the people and the Government

With the cease fire agreement in 1949 the popular Government in Kashmir had a breathing time to chalk out a programme of rehabilitation and reconstruction But feeling of uncertainty about the future of the State weighed heavily upon the minds of the people and produced unhealthy trends Communal



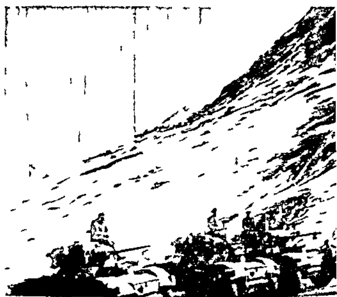
L \K I aram Singh PI C



Soldiers crossin the stream by Rubber Boat



The a' ance in face of hea y fire



Tanks in action in Zojila

(*c*) There will be no discrimination on grounds of religion caste sex place of birth etc but the State Legislature will have the right to make special provisions for the advancement of the socially and educationally backward classes of citizen

(*d*) All the citizens living within the State will have the right to freedom of speech and expression, to assemble peacefully and without arms to form associations or unions to move freely throughout the Indian territory to settle in any part of the Union to acquire or dispose of property and to practise any profession

(*e*) The people of the State will have the right to move the Supreme Court by appropriate proceedings for the enforcement of Fundamental Rights

(*f*) No existing law in force in the State and no law to be enacted hereafter by the State Legislature defining the classes and persons who are the permanent residents of the State or conferring on them special rights and privileges in respect of employment under the State Government or in relation to the acquisition of immovable property in the State settlement in the State or rights of scholarship etc can be affected by any provisions of the Union Constitution

(*g*) The executive powers of the Union shall not extend to certain matters pertaining to the State with respect to which the Union Parliament normally ha the power to make laws as this right has been granted to the State Legislature

(*h*) Appeals shall lie to the Supreme Court from any judgement final order or sentence passed as a result of the criminal proceedings by the State High Court of Judicature

(*i*) No proclamation of emergency made by the Union Government on grounds only of internal disturbance or imminent danger thereof can have effect in relation to the Jammu and Kashmir State unless it is made either at the request of or with the concurrence of the State Government

(*j*) Provisions of the Un on Constitution in regard to official language will apply to the State only so far as they relate to ——

(*i*) Official languages of the Union

(*ii*) Official languages for communication between the State and another State or between the State and the Union and

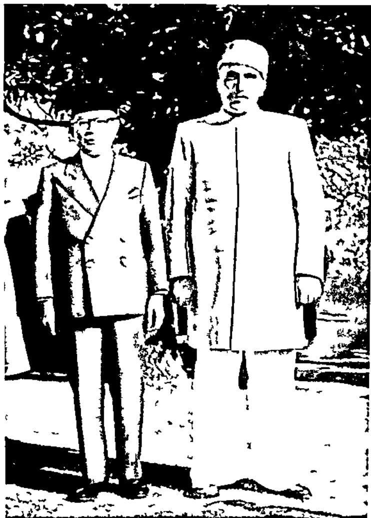
(*iii*) the language of the proceedings in the Supreme Court

The Constituent Assembly the supreme representative organ of the people of the Jammu and Kashmir State has thus ratified the State s accession to India and settled once for all the question of State s future in exercise of its sovereign right This decision which is in full accord with the aspirations of the people of Jammu and Kashmir has put an end to all doubts and uncertainty created by the policies of previous leadership which sought deliberately to leave the State s relationship with India in a state of flux The State has thus been assured political stability by constitutional validity being accorded to its association with the Union of India At the same time the scope and quantum of accession has been concretely defined to secure an advantageous position for the growth and progress of the people of Jammu and Kashmir in accordance with their aspirations cultural traditions and local genius with the active assistance of the people in the rest of India

Financial Arrangements

As a result of these constitutional arrangements it has been possible for the State to secure a special position within the Union These arrangements have made it possible for the Government to come to an agreement with the Government of India in regard to the financial assistance that a constituent State is en

Dr Mohd Hatta in Kashmir



The Vice President of Indonesia and Bakshi Ghulam Mohd the Kashmir Premier Photo taken during the Indonesian leader's visit to Kashmir in November 1955

titled to receive from the Centre These new financial arrangements arrived at by the present Government with India with effect from 13th April 1954 constitute an important link in the ties which now bind Kashmir with India Apart from releasing substantial funds under the Central services to enable the State to spend more liberally on nation building activities and resulting in abolition of inter State transit duties (against an annual grant of Rs 210 lakhs to compensate the State for the loss of customs revenue) expansion and improvements in integrated services the new financial arrangements aim at still closer association of the people with the Indian Union The principal features of this policy are

(*a*) Abolition of inter State transit duties (import and export duties levied and collected by the State) on goods entering into or going out of the State

(*b*) Taking over by the Centre the customs duties on exports from and imports into the State previously collected by the Government of India and made over to the State Government in accordance with old treaty arrangement

(*c*) Taking over by the Centre taxes on income other than agricultural income excise duties on tobacco and certain other goods

(*d*) Administration by the Centre of certain departments like Telegraphs and Telephones Broadcasting and Meteorology

(*e*) Taking over by the Centre of the responsibility to maintain the Madhopur Jammu Srinagar Uri road as a national highway

(*f*) Maintenance by the Centre of the State Forces already taken over by them from 1st of September 1949

(*g*) Taking over by the Centre the whole of the staff of the transferred departments or such part of the staff of composite departments as relates to Union functions on terms and conditions not less favourable than those admissible to the officials concerned previously

(*h*) Taking over by the Centre of such staff of the composite departments as may be rendered surplus to requirements subject to suitability

(*i*) The grant to the State Government by the Centre of an annual subsidy of Rs 210 lakhs to compensate the State for the loss of revenue as a result of the transfer of certain departments and revenues to the Centre and the abolition of inter state transit duties etc This grant has been raised to Rs 250 lakhs by the Centre for the adjustment of the resultant budgetary position

(*j*) Grant of loans and other forms of assistance to State for approved development plans and the schemes

As a consequence of these far reaching measures prospects of immediate economic recovery have considerably brightened Besides affording substantial relief to the common man in terms of reduction in prices these measures have given an impetus to increased flow of trade and commerce opening fresh avenues of employment and work for the people The cramping controls on private enterprise have been relaxed resulting in greater economic activity

Food Problem Solved

But it is on the food front that the new Government won a tremendous success The problem of food is the most urgent problem for the State in view of the extremely limited area available for cultivation Before August 1953 a rise of 500 to 600 per cent had been registered in the prices of foodgrains The system of *mujawaza* had eaten into the very vitals of the peasant and anti social elements such as the grain dealer and corrupt Government official were thriving at the cost of both the cultivator and the consumer

The new Government took a bold step On the one hand it increased the rationed scale of the people living in towns and cities and, on the other offered a higher price to the producer cultivator for his grain which was to be distributed among the citizens So that there may not be a shortage of foodgrains, the new Government imported 12 lakh maunds of rice from India to be supplied at reduced rates to the consumers in the city of Srinagar and outside All these measures had an electrifying effect For the first time in the last 10 years people had enough to eat and that too at cheap rates The compulsory food levy was abolished This freed the peasant from an iniquitous system which used to force him to purchase grains at exhorbitant prices in the black market in order to meet the demands of the State Collector Far flung areas of the State received grain at cheap rates and there was removed from the hearts of the people a burden weighing upon them for years past

First Five Year Plan

The Jammu & Kashmir State had initially prepared a five year plan for the period 1953 54 to 1957 58 At a preliminary discussion between the Planning Commission and representatives of the Jammu & Kashmir Government it was agreed that this Plan should be recast for the same period as India s Five Year Plan namely 1951 52 to 1955 56 The total size of this revised Plan was fixed at Rs 13 crore to consist of

(*a*) Banihal tunnel—Rs 3 crore

(*b*) development works to be financed out of the Central assistance—Rs 7 crore and

(*c*) development works to be financed out of the revenues of the State—Rs 3 crore

But in spite of these opportunities and resources being made available the previous Government did not show sufficient zeal to utilize them properly for the development of the State Till August 1953 large amounts from the funds were diverted towards unproductive channels

Soon after the assumption of office by the new Government, conventions were called in different parts of the State in which the representatives of the people were afforded fullest opportunities of suggesting whatever additional works of public utility they had in view relating to their respective areas As a result, the Plan was revised and expenditure involved on the schemes to be financed out of the Central assistance rose from Rs 700 to Rs 879 45 lakh Similarly the cost of development works for which funds were to be provided by the State Government went up to Rs 384 1 lakh

Power Projects

The Plan provided Rs 250 19 lakh for power projects exclusive of the amounts spent during the pre Plan period These projects were intended to cover not only the valley of Kashmir but large areas in the Jammu province where power is urgently needed for supply of drinking water besides lighting irrigational and industrial purposes These projects were

(*a*) Sind Valley Hydro electric Project—Rs 201 68 lakh

(*b*) Jogindernagar Power Project—Rs 28 50 lakh and

(*c*) Udhampur Power Scheme—7 87 lakh

The Sind Valley Hydro electric Power Project has now been completed and is designed to generate in the first instance 60 000 kwt of electricity and to irrigate nearly 3 000 acres The Plan envisages the expansion of the scheme to generate 15 000 kwt which would meet the demand of the Valley for the next 25 years

The Jogindernager Power Project which has already been completed ensures bulk supply of power to Jammu by purchase from Jogindernagar Power House Three main receiving stations have been installed between Pathankot and Jammu for carriage and distribution over a transmission line extending over 70 miles and capable of carrying 5 000 kwt of power This transmission system was laid at a cost of Rs 39 03 lakh Jammu city is now receiving 1 500 kwt of power from Jogindernagar and negotiations for purchase of 2 000 kwt more are in progress The power thus obtained will be utilised for lifting water from tube wells in the Kandi areas for cottage industries and domestic purposes

The Udhampur Scheme will similarly benefit a large area in the Jammu province and give an impetus to greater economic activity in these far flung parts of the State Lines will be laid and power transmitted to the sites of tube wells already sunk or those being sunk in 1955 56 in the Kandi area in the Jammu province

Communications

The State being largely mountainous has a poor road system inasmuch as only 2 5 miles of road existed per 1000 sq miles of the area of the State before 1951 During the years since August 1953 425 miles of new roads were laid 482 miles of existing roads were improved and earth work for improving existing roads was completed for 252 mile more About 7 000 feet of new major bridges will have been constructed by the end of the First Five Year Plan

Community Projects

In order that the community may be awakened to its needs the Five Year Plan envisages among other things the development of an intensive type in certain selected rural area The State was allotted one Community Project which was divided into 3 blocks *viz* Badgam (Kashmir) Mansar (Jammu) and Ladakh The aggregate allotment of Rs 50 lakh made for the purpose was distributed for improvements in agriculture veterinary health education forests roads etc It will be rather long to give a detailed account of the improvement already effected but suffice it to say the people living in the 3 blocks have acquired a new outlook and are looking forward to a life of peace and prosperity

Irrigation Schemes

With a vast area of mountainous terrain Jammu & Kashmir State has an incredibly small fraction of cultivable land available Even this limited area was not exploited properly for the purpose of producing foodgrains

Soon after August 1953 the Government reviewed the irrigational plans prepared under the previous administration and as a result the objective was defined to include not only extension of cultivable area but intensive cultivation of the area already under cultivation through the introduction of proper seeds and fertilizers An area of about 8 000 acres was proposed to be brought under cultivation by lift irrigation at Padgampore 16 miles from Srinagar on the Srinagar Jammu road

This Lift Irrigation Project consists of 17 diesel pumps capable of irrigating an area of 3 000 acres of *baram* land The average produce yielded by the cultivation of this area is about 9 000 maunds of paddy

Besides this gravity irrigation projects have been launched in widespread areas in Jammu as well as in Kashmir Apart from building new canals repairing of older ones was taken up In terms of expenditure the provision for the irrigation works in the Budget of 1954 55 stands at 39 85 lakh Already 18 600 acres of land have been brought under irrigation resulting in an increase of about 3 lakh maunds of paddy in *kharif* 1954 55 Five thousand additional acres of land are expected to be irrigated as a result of the completion of canals on which work is in progress This will yield 1 6 lakh maunds of more paddy

Flood Control

The Kashmir Valley has had flood visitation almost every year for some time past It was considered essential to bring into operation flood protection schemes prepared by experienced engineers in the past Accordingly a number of works necessary for flood control and drainage have in consultation with the Government of India experts been undertaken and are estimated to cost Rs 2 5 crore spread over a period of 3 years The first phase of the Project which was completed in September 1955 involved an expenditure of Rs 60 lakh approximately on the following works —

(*a*) digging of channels from the flood channel to the Wular Lake

(*b*) stablization of hill torrents in northern Kashmir and

(*c*) reconstruction of Baramulla bridge and Nangal Nalla diversion

Supply of Drinking Water

Water Supply Schemes are expected to be completed in eight towns namely Pampore Bijbehara Bhaderwah Old Nowshera Doru Qazigund Reasi and Leh Tube wells have been sunk at 8 places in the Kandi area By the end of March 1956 the number of tube wells will have risen to 16 Four pumping stations have been installed at Raya Ghagwel Sallen and Lakhanpur About 25 lakh gallons of water was distributed through tankers in the Kandi area thus relieving the distress of over a lakh of people and about 50 000 cattle population of the villages lying between Akhnoor and Lakhanpur which depend for their drinking water requirements on village ponds which generally go dry during summer

Refugee Rehabilitation

The problem of resettlement of refugees although partly solved with the assistance received from the Government of India presented numerous difficulties when the new Government came to office A large population of D P s who depended mostly on agriculture were still without land and were living a precarious life in temporary camps on insufficient doles allowed to them The new Government allotted to such D Ps sufficient land to maintain their families and made cash grants of Rs 1 000/ per family for building huts and purchasing agricultural implements For displaced persons following occupations other than agriculture colonies were built and they were also given cash grants to start small scale cottage industries and settle themselves in business Dispensaries and Primary and Middle Schools were opened in areas inhabited by displaced persons and preference was given to displaced person candidates over others in the matter of recruitment to services qualification and merit being equal Deposits and other dues payable by the Panchayat and P W Departments and the Jammu and Kashmir Bank were immediately made to the displaced persons

Tourist Industry

The tourist industry which had been hard hit as a result of partition has thanks to the measures adopted by the present Government not only been revived but has broken all previous records This year more than 17 000 visitors came to Kashmir resulting in a brisk trade for hotel keepers house boat owners manufacturers of art goods and lots of other people engaged in different trades No doubt the removal of political uncertainty and the restoration of peaceful atmosphere in the State was largely responsible for this healthy development but the other measures taken by the Government were no less responsible for it Mention may be particularly made of the concessions in fare by the Indian Railways the Air Lines and the State and private bus services and speedy redress of the complaints made by the tourists against boatmen hawkers etc Provision of more accommodation in Dak Bungalows and Rest Houses improving huts at Gulmarg and shelter huts at some of the tourist resorts are some of the amenities provided by the present

Government In fact a tourist is now made to feel at home in Kashmir and every possible effort is being made to make his stay comfortable and enjoyable

Industries

A concerted effort is being made by the present Government to promote greater production so as to raise the earning capacity of workers to enable them to improve their living conditions

The State owned Silk and Woollen factories received special attention of the Government and thanks to the improvements effected in the quality and quantity of goods manufactured by these it was possible to earn substantial profits enabling the Government to declare a bonus to the workers and to provide greater amenities to them

Similarly considerable improvement has been effected in the working of the State Emporia in various cities of India New Production centres were opened providing employment to a large number of craftsmen

A new concern the Government Joinery Mill at Pampore went into operation It had an initial success inasmuch as goods worth 35 lakh were sold in the first year of its working Following small scale industries have also been established

(1) Paint Factory
(2) Handloom Production Centre at Hiranagar
(3) Pashmina Centre at Bahsohli
(4) Bamboo Centre Bahsohli
(5) Hand made Paper Centre Miran Sahib
(6) Four Handloom Weaving Centres
  (*a*) Woollen Centre Kishtwar
  (*b*) Woollen Centres, Ramnagar and
  (*c*) Cotton Centre Samba
(7) Walnut Wood Seasoning

Students from the State are receiving training in clay modelling basketry book binding and weaving in different parts of India A factory is being organized in Srinagar for the manufacture of surgical instruments for which there is a local market A Central Dye House is proposed to be established during 1955 56 where yarn will be dyed on scientific lines in fast colours and at cheap rates for the artisans and craftsmen of the weaving industry A Knitting factory is proposed to be set up during 1955 56 for the manufacture of socks gloves jersies pullovers etc for which the yarn will be prepared by the Government Woollen Mills A tile making machinery is expected to start functioning bv the end of the First Five Year Plan period Clay of good quality is available in the State in abundance The tiles can be used with advantage for roofs of the buildings instead of wooden shingles A Central Vacuum Unit is proposed to be established during the year 1955 56 for packing walnut kernel for export to foreign countries Stone industry is proposed to be run on scientific lines during the year 1955 56 An experiment carried out in connection with this industry has proved very successful A number of articles such as bowls ash trays ink pots pen holders cups saucers spoon handles buttons have been manufactured Raw material for the manufacture of these articles is available in abundance at Phalgam and Vernag in the Kashmir Province A Calendering plant for calendering the cloth produced by handlooms and power looms in the Jammu Province is proposed to be set up at a central place in the Jammu Province

Banihal Tunnel

The main road link with the outside world the Banihal Cart Road, though considerably improved in recent years gets blocked for a number of months during the winter when traffic to Kashmir gets suspended

Besides the effect it has on local economy this interruption in the intercourse with the outside world has given rise to some insularity in the outlook of the people in Kashmir

Since 1953 the question of breaking this barrier has engaged the attention of the Government of India and the State Government As a result what is perhaps the most ambitious project of recent times has been undertaken in the State which will establish an all weather physical link between the Kashmir Valley and the rest of India A low level tunnel at Banihal a mountain of about 9 000 ft in height which for centuries has isolated Kashmir from the outside world is being bored to enable through traffic to ply all the year round The project when completed will not only profoundly affect the outlook and psychology of the people in the Valley who for want of easy access to the broader currents of Indian life, have occasionally held themselves aloof but will also provide a reliable passage for greater flow of trade between Kashmir and India

The tunnel will be 1½ miles long and will have two tubes 12 ft wide and will take three years to complete It is sited at 73 miles from Srinagar at its South portal The North portal on the Valley side will be approached by another road because it does not fall on the existing B C Road This independent road the construction of which has already been completed is 5 miles long and takes off from mile 50 of the existing road The North portal will therefore be 55 miles by road from Srinagar With the South portal at 73 miles and with an extra length of 1½ miles of the tunnel the total distance saved will be about 16 miles

The tunnel will be bored at a height of 7 253 feet as there is no heavy snow at that level generally In fact all heavy snow storms at the pass blow at a higher level Boring of the first tube is in progress and on its completion by the end of 1956 work on the second tube will be started

Transport

Along with the boring of the tunnel in Banihal the Government of India have agreed to take the present rail head at Pathankot to Jammu in three stages which will further facilitate flow of traffic to and from India As a first step towards it the railway line has been extended to Madhopur 7 miles from Pathankot

Kashmir with the aid of the Central Government and cooperation of the people of the rest of India is waging a fight against immemorial poverty and social evils which have so far fettered the people of this beautiful land

INDIA IN WORLD AFFAIRS

WHEN India entered the international field on August 15 1947 as a State enjoying sovereign equality with other members of the world community many foreign observers predicted that her freedom would be of short duration only In their opinion the reason for British unwillingness to grant freedom to India was that the Indians were not capable of governing themselves They frankly expressed the view that chaos and confusion would prevail in the sub continent after the withdrawal of the mighty British army But history was in no mood to oblige those people Although there was some confusion in the country after the achievement of independence there was no widespread chaos Later events showed that India could tide over this confusion without much difficulty and that she was not only in a position to preserve her freedom but by formulating and following a positive foreign policy she was also able to give a lead to other Asian and African countries in their struggle for the defence and extension of their freedom

At present many may question the wisdom of those who are making the foreign policy of the country but few will question the fact that India within eight years after the achievement of her independence has emerged as a significant factor in world affairs This is not surprising because the vastness of the country and the man power which is at the disposal of the Indian Government, tend to give a prominent place to India in the world Strategically she is so situated that she cannot be ignored in a consideration of any major problem relating to defence trade or economic development affecting any group of countries in the Asian continent It is well known that during the two world wars and during the inter war period the Indian man power which Great Britain could mobilize was a source of great strength to her both in the fight against her enemies and in resisting the struggle for freedom in her colonies Naturally when India achieved her freedom and her people became the masters of their own destiny India s status and position in the counsels of the world attracted much attention What was striking was not that India began to

occupy a position in the international field to which her geographical situation and population entitled her but that she gradually began to exercise her influence in world affairs which was far beyond of what was expected of her This was the result of some historical developments inside and outside the country

INDIA AND WORLD POLITICS BEFORE 1947

Before examining them one should note that although India became an international entity in the strict sense of the term only on August 15 1947 she was something more than a mere colony of Britain even before that date The Government of India even under the British had some though very few international relations It was represented independently of the United Kingdom in many international organizations and conferences India was an original member of the League of Nations and the United Nations There was no doubt that on vital matters of international policy the Indian delegates to these international gatherings did not express a view different from that of the British delegates But on other matters Indian delegates did take some kind of an independent attitude before 1947 During the meetings of the International Labour Organization and other subsidiary bodies it was also usual for the Indian delegates to confer with representatives from other Asian countries and to hold together whenever an Asian question arose

Although the experience of the Indian Government in the international field was thus limited free India herself was not a novice in world affairs In a moral though not in a constitutional sense India secured for herself a definite place in the international sphere even before 1947 The Congress party and the leaders of the Indian National movements had expressed opinions on world affairs since 1920 and had unequivocally made clear India s stand on some important international developments from that date

It is no exaggeration to say that the fundamentals of the foreign policy of Free India directly follow from these opinions and this stand which the leaders of the national movement took even before India became free The attitude of some other Powers towards Independent India was also coloured by the events of an earlier period Referring to this Pandit Jawaharlal Nehru observed Because of our past record in India this the anti imperialist record we have not been *persona grata* with many groups and peoples outside

Pandit Nehru who was responsible more than anyone else for the national movement taking a keen interest in the events outside India has been the architect of India s foreign policy ever since she had a policy When power was assumed by the Indian leaders in New Delhi in September 1946 under a re organised Executive Council of the Governor General Nehru became the Member of External Affairs in the Council At that time he outlined India s foreign policy as follows In the sphere of Foreign Affairs India will follow an independent policy keeping away from the power politics of groups aligned one against the other India will uphold the principle of freedom for dependent peoples and will oppose racial discrimination wherever it may occur She will work with other peace loving nations for international co operation and goodwill without exploitation of one nation by another Towards the United Nations India s attitude is that of whole hearted co operation and unreserved adherence in both spirit and letter to the Charter governing it To that end India will participate fully in its various activities and endeavour to play that role in its councils to which her geographical position population and contribution towards peaceful progress entitle her

When India became free and was partitioned in August 1947 the new Dominion of India inherited the undivided India s international status, her membership in the United Nations and assets and liabilities implied in such membership The post partition India also inherited the undivided India s foreign policy

by strictly adhering to the formulations made by Nehru when he was the Vice President and Member for External Affairs in the Governor General's Executive Council

INDEPENDENT POLICY IN PURSUIT OF PEACE

These formulations on foreign policy became very significant in the context of events of the post war world The most important among them was the division of a large number of states into two distinct and opposing groups one led by the Soviet Union and the other by the United States This event eclipsed all other developments in the post war world There were allegations and counter allegations from both sides While the members of the Moscow led groups accused others of being partie or enchained to Anglo American imperialism the Soviet Union was accused by others of having attempted to instal totalitarian regimes everywhere This struggle for supermacy over the world by the two power blocs' was known as the cold war and there were preparation for a hot war Referring to this formation of groups and power blocs in the international field and India's attitude towards them the Prime Minister repeatedly declared that this country would not join either of them and that she would follow an independent policy This was not a negative or passive policy of neutrality but a positive approach aimed at promoting peace in the world India's objective was to steer clear of the two blocs and to bridge the gulf between them as far as it lay within her power to do so If the division of a large number of the states into two cold war camp was an important development of the post war era equally important was the decision of India and some other states not to join any of these camps It is this aspect of India's foreign policy which is one of the reasons for India's prominence in the world affairs

No doubt this pursuit of independent foreign policy was partly the result of the conscious decisions made by India's leaders to promote world peace These decisions it should be emphasised were more or less in accordance with the wishes of the vast majority of the people Justifying the Indian Government's refusal to take sides in the cold war the Prime Minister said Any attempt on our part i e the Government of the day here to go too far in one direction would create difficulties in our country It would be resented and would not be helpful to us or to any other country

Why were the people of India averse to joining any of the power blocs or as some of them would say join other people's quarrels? The answer to this question lies in the fact that the basic problems facing the Government of Free India were internal and not external The dominating elements in the Indian political life were fully conscious of the economic weakness of the country and of the gigantic problem of providing her vast population with the necessities of life like food cloth and housing Militarily also India was very weak The infant independent state of India was in 1947 just starting the journey of political consolidation of her independence and economic improvement of her people She could not at that time afford to be involved in a major armed conflict or even in a preparation for war

AGAINST RACIAL DISCRIMINATION

There were also other factors for India's decision not to join any of the power blocs Two major objectives of India's foreign policy were the upholding the principle of freedom for dependent peoples and the opposition to racial discrimination wherever it might be occurring These objectives inevitably follow from India's recent history and from the traditions of her struggle for freedom b, these matters the Government of Free India disagreed and very often came into conflict with the Western Powers The worst kind of racial discrimination existed in the Union of South Africa which was itself dominated by the Westerners and which was a reliable ally of other Western Powers as far as cold war was concerned In other parts of Africa and in the United States the white men discriminated against the coloured and this aroused very strong indignation in India and other Asian countries Under these circumstances it would be diffi

NO ALLIANCE WITH THE SOVIET BLOC

If some of these features of India s foreign policy made it difficult for her to ally with the West, owing to some other reasons it was almost impossible for her to ally with the Communist powers in the years *immediately following her achievement of independence During 1947 1949 the Soviet foreign* policy was so much aimed at winning further conquests for world communism that it was not very enthu siastic of winning the friendship of non communist states In India as in many other countries it was feared that the Soviet Union was expansionist and aggressive and the developments connected with the Berlin crisis and the communist capture of power in Czechoslovakia only strengthened that fear It was felt that the Soviet Union was not even prepared to tolerate such a communist government as Tito s Government of Yugoslavia because they were not prepared to fall in line with the international communist line In that period the question of India allying with the communist states did not therefore, arise During 1947 48 the Soviet press reflecting the spirit of Soviet foreign policy attacked the Indian Government for its reactionary policies and for its subservience to Anglo American imperialism

The foreign policy formulated by the Indian Government under these circumstances and followed since then was firmly based on the principle of non involvement in power blocs

INDIA'S RELATIONS WITH PAKISTAN

The objectives of India s foreign policy in relation to peace racial equality and the freedom of the dependent peoples were based on high ideals and the attempt to fulfill them were very well appreciated even by those who did not very often see eye to eye with the Indian Government But not so India s relation with Pakistan It was unfortunate that the two newly independent countries of this sub continent India and Pakistan could not always maintain cordial relations and at one stage were even involved in an armed conflict in Kashmir From the Indian standpoint it was still more unfortunate that India s case on Kashmir was never fully understood in many of the foreign countries Kashmir was of course not the only issue which marred the relations between the two countries there were others like the disputes concerning the canal water the minorities and the property of the evacuees But they were not of a major character and but for the fact that the Kashmir problem over shadowed them all it would not have been difficult for the two states to come to a negotiated settlement on them

Kashmir was a thorny problem The Pakistanis who believed that the Hindus and the Muslims were two nations claimed suzerainty over Kashmir as a matter of right because the majority of the popu lation of that state were Muslims Neither the Indian Government nor the people of India were prepared to accept that view They held that ever since the formal accession of Kashmir to the Indian Union, the defence of that state became India s responsibility The Indian Government hoped that ultimately the people of Kashmir would themselves determine their future by expressing their opinion on the matter through an impartial plebiscite But the invasion of the state by the tribesmen and Pakistan nationals did not create the necessary atmosphere for organising such a plebiscite The reference of the issue to the United Nations also did not help the situation because the discussions in the U N Security Council and the decisions made by that body were mainly influenced by power politics Later it was hoped that a solution to the Kashmir problem would be found by negotiations between the two Governments outside the United Nations However this was also handicapped by Pakistan s decision to join a military alli ance with the United States and other defence organizations like S E A D O which were established under Western auspices

This brings us to an important aspect of India s external relations arising from the projection of the cold war into the peace area Before examining it in detail we may make a passing reference to



India s connection with the Commonwealth was also not an insignificant aspect of this country s foreign policy

INDIAN REPUBLIC IN THE COMMONWEALTH

When India Pakistan and Ceylon became independent states and decided to retain their connection with the Commonwealth the character of the relationship between its different members did not change very much but its composition was substantially changed as a result of the entry into it of countries of another continent and peoples of a different colour and race whose history and traditions were different from those of others To India the decision to continue her association with the Commonwealth was not an easy one to make There was no doubt that before 1947 a large section of the politically conscious people of India was hostile to the idea of India maintaining any link with the British Commonwealth It was not therefore surprising that the Indian Constituent Assembly in one of its meetings made the unilateral decision to give to this country the status of a Republic and departed from the practice of other Commonwealth countries But there were many reasons which favoured India s continued association with the Commonwealth Since 1947 the Indian leaders enjoyed full liberty in domestic and external affairs though India had continued to be a Dominion It was also felt that taking into account India s economic defence and other interests it would be advantageous to her to continue the link with the Commonwealth Now a question arose how to reconcile India s republican status with her future association with the Commonwealth ? Finally a new formula and that phrase were invented and India continued to be a member of the Commonwealth even as a republic but she recognized the King as the symbol of her association with the Commonwealth Today it is widely held in India that her link with the Commonwealth has not hindered her in pursuing an independent foreign policy It should also be noted that although there were many differences of opinion between India and other members of the Commonwealth on many matters they had found an area of agreement between them on many specific international issues concerning war and peace In her peace efforts India very often found her hand strengthened by the influence exerted by other Commonwealth countries, and in particular by the United Kingdom, in the international field This was evident when the question of the representation of China came up before the U N when the Indian resolution on the Korean prisoners of war was being discussed in the Assembly and in the opposition to the proposal to use Atom Bombs in Korean war

FREE INDIA FINDS HER FEET

India assumed the republican status in January 1950 when the Constitution drawn by the Indian Constituent Assembly came into effect This year was also an important period in her external relations because it saw the gradual evolution of a mature diplomacy on the part of India There was, of course no radical change in the foreign policy but there was definitely some change in the emphasis on some aspects of it During 1947 1949 the activities of the Indian diplomats and statesmen in the international field were more or less confined to giving expression to the high ideals for which India stood and to voting in accordance with them in the international conferences The occasions when the Indian Government did go a few steps further and took the initiative in referring some issues to the United Nations and in suggesting some particular solutions to some of the international problems were rare And these rare occasions referred to issues like Kashmir racial discrimination in South Africa and Indonesia s freedom in which India was vitally interested There were few other questions in the tackling of which India played a prominent role before 1950 It is also noteworthy that all the issues in which India took a keen interest in this period were not directly concerned with the conflicts between the Big Powers and the cold war This and other reasons led many impartial observers of the international scene to conclude that in spite of

India s professions her independent foreign policy of non involvement in power blocs was of not much significance India s retention of the historical connection with the Commonwealth and her desire to make use of American technical and economic aid for the economic development of the country further strengthened this impression Towards the close of 1949 Lawrence K Rosanger an American scholar rightly noted In the shadow of two giants India declares independence from both power blocs but leans towards the West on some important issues

It is doubtful whether anyone will now make an identical comment about India s foreign policy Since 1950 and particularly in the past two years the independence exercised by India in the formulation of her foreign policy and in its implementation is widely recognized even in those quarters where it is regretted The declaration of the Indian Government, that they would follow an independent foreign policy and would take all steps for furthering the cause of world peace was no more the mere expression of a vague desire but the basis of India s concrete actions This change in emphasis in Indian foreign policy was partly the result of the fast moving events of the world With the outbreak of war in Korea in June 1950 it was clear that the struggle for supermacy in the world was no more confined to waging a cold war with the entry of the Chinese People s Republic into the Korean conflict it was even feared that there would be another world war Korea also brought home the fact to all concerned that the power which the communist states could mobilize in the event of a major armed conflict was more or less equal to the power which was at the disposal of the Western Powers It also became widely known that the atom bombs and hydrogen bombs were no more the monopoly of any one of the two power blocs All these features of the world situation made even the thought of a major world war horrible and it almost became imperative for countries like India which were uncommitted to either of the blocs to exercise their influence for easing the international situation

Since 1951 the internal situation in the country did not hinder India playing a prominent role in international affairs The political tability which this country began to enjoy and the steady though slow improvement which was taking place in the economic sphere stood in contrast with the state of affairs of India before 1950 and that which existed in many other Asian countries generally in the post war era There were many factors which created this situation in India The peaceful nature of the transfer of power from the British to Indian hands made it possible for the government of independent India to start their career with the help of an experienced civil service and a well organized army The people of India had some kind of a limited experience in self government and parliamentary democracy It was therefore possible for India to work out the political system envisaged in India s Constitution The presence in the political field of a well organized Congress party which led the national movement for freedom and some national leaders who commanded respect from all sections of the people was a tremendous factor in favour of stabilising the situation in India One of the greatest of Free India s achievements was the general election of 1950 51 The electorate was 170 million people three fourths of whom were illiterate The polling was heavy These elections by returning the Congress party to power gave some security to it Much more than that they ensured some stability for the existing political structure in India because the elections were conducted impartially efficiently and without any major incident In 1950 the Indian Government also took steps to reorganise the country s economic life In that year they appointed a Planning Commission to assess India s resources and to formulate a plan for their most effective and balanced utilization These developments in the political and economic fields assured some stability and unity inside the country and contributed to a rise in the prestige of the Government headed by Pandit Jawaharlal Nehru under whose auspices they took place

As we saw the tense situation in the world demanded positive action in favour of peace on the part of those who were uncommitted to either of the power blocs And we also saw that the internal situation

in India allowed the government of the country to face the rest of the work with some self confidence and to take an active part in world affairs Under Nehru s leadership the Indian Government did take that active part and this in turn raised the prestige of the Indian Prime Minister still higher in the minds of the people Few other actions of the Indian Government were as much supported by the people as those taken in the international field They had a certain pride in their Government which followed a foreign policy independent of the power blocs with its firm stand in favour of world peace

INDIA'S APPROACH TOWARDS FAR EASTERN PROBLEMS

Now let us examine some of the specific acts of the Indian Government in the international field One of the most significant among them was the attitude they adopted towards Communist China With the defeat of Chiang Kai shek s forces and the establishment of the People s Republic under Communist auspices in China in 1949 the Indian Government realised that a major political and military power had emerged in the Far East—a power which could not be ignored by those who were concerned with that region India very soon hurried herself to recognize the new regime and to establish diplomatic and friendly relations with it The United Kingdom and some other states also recognized it without much delay But the United States and under her leadership a large number of other states not only refused to do so but also opposed the new Government s claim to represent China in the United Nations and elsewhere Since then the question of the international status of this Government became a source of disagreement and sometimes one of friction between the United States and this country The Indian view was that as a member of the United Nations and a permanent member of the Security Council China had certain obligations to fulfil and to carry out these obligations the Government representing China must therefore have effective control over the territory and people of China It is the Communist Government that could discharge China s duties and obligations under the Charter and therefore they could not be denied the right to be represented in the United Nations The Indian delegates in the U N General Assembly al o emphasised the considerations dictated by common sense and indisputable general principles of law The question to be considered was whether the new Government was sufficiently stable exercised effective authority over the territory concerned and was obeyed by the majority of the people If the stability was present in a particular state the Government of that state was entitled to be recognized by the United Nations India contended that if it should be later established that the Government in question was violating the provisions of the Charter and failing to observe human rights and fundamental freedoms then the U N Assembly could act in accordance with the steps laid down in the Charter

Many in India were not only prepared to recognize the Communist Government in China as an accomplished fact but also welcomed it as a desirable change from the corrupt regime of Chiang Kai shek They saw that the communists in China had achieved freedom from foreign control the unification of the country and the establishment of a single unchallenged authority over the entire territory of the state They were therefore eager to establish close and friendly relations with China

On the future status of Japan also India held very strong views She was opposed to the Peace Treaty signed at San Francisco because it included a provision which suggested that the armed forces which remained in Japan when she was under occupation might stay on in that country as part of a defensive agreement with the U S The Indian Government maintained that such an agreement concluded along with the Peace Treaty gave the impression that it did not represent a decision taken by Japan in the full enjoyment of her freedom as a sovereign nation India therefore concluded a separate Peace Treaty with Japan

INDIA'S PEACE EFFORTS IN KOREA

Another Far Eastern development with which India was later associated was the Korean war As soon as the war started in Korea in June 1950 the Indian Government tried their level best to bring peace to that unfortunate country On July 12 1950 India s Prime Minister sent identical personal messages to Soviet Premier Stalin and American Secretary of State Acheson urging a speedy and peaceful settlement of the Korean dispute The message ran India s purpose is to localise the conflict and to facilitate early peaceful settlement by breaking present deadlock in the Security Council so that representatives of People s Government of China can take seat in the Council the U S S R can return to it and, whether within or through informal contacts outside the Council, U S A U S S R and China with the help and co operation of other peace loving nations can find basis for terminating conflicts and for peaceful solution of the Korean problem

India s anxiety to localise the war in Korea and to lessen the tension in the Far East was evident on many other occasions also When the United Nations forces reached the 38th parallel the General Assembly by a resolution implicitly endorsed the American attempt to unify the two Koreas by arms The Indian Government realised the gravity of this resolution and their delegate told the U N General Assembly that India fears that the result may be to prolong North Korean resistance and even to extend the area of conflict He added that India viewed with the greatest misgivings the Assembly s decision to sanction the crossing of the parallel by the United Nations forces India took an almost identical stand when the General Assembly adopted a resolution branding Communist China an aggressor in Korea Opposing that resolution the Indian delegate stated that once it was adopted there was not much hope of a negotiated settlement of the Korean dispute

At first India did not receive much support from other U N members for the policy she adopted in the U N on these matters Later however some other states joined her in making efforts to bringing a negotiated settlement of the Far Eastern disputes On 12 December 1950 India along with other Arab Asian states submitted a resolution requesting the President of the Assembly to constitute a group of three persons to determine the basis for a cease fire and to make recommendations to the Assembly as a whole Such a group was eventually constituted and B N Rao the leader of the Indian delegation was chosen as one of its members This group in general and the Indian delegate in particular tried their level best to find out a peaceful settlement of the dispute Unfortunately most of these efforts of the Indian Government did not lead to the desired results But they were successful in mobilizing an important section of the Arab Asian states and some Commonwealth states in favour of the proposals put forward by India And they also led to a gradual emergence of India as a conciliator if not as a mediator as far as the conflicts between the Big Powers were concerned This made it possible for her to make the greatest contribution towards peace by first suggesting a solution to the problem of the Korean prisoners of war and later by acting as the Chairman of the Neutral Nations Repatriation Commission which took charge of the prisoners

It is too early to assess India s role in Indo China But even now it can be said that the important part played by India in the Geneva Conference of 1954 and in the International Commission on Indo China can also be traced to the reputation she enjoyed as a neutral in the cold war

THE UNITED NATIONS AND COLLECTIVE SECURITY

From India s stand on questions of war and peace follows her attitude towards the United Nations role in settling of international disputes She was basically opposed to the American attempts to make the United Nations an executive agent of an anti Communist alliance It was felt in this country that the carrying out of the enforcement functions by the U N against the opposition of a major power would disrupt

rather than strengthen, the world organization In the opinion of the Indian Government the international situation demanded an emphasis on the mediatory rather than the enforcement functions of the United Nations A war led by one bloc of powers against another bloc even if it were waged in the name of the United Nations would only lead to world wide destruction and not to the settlement of the international disputes This concept of the U N as primarily a machinery for negotiation conciliation and mediation was only an extension of India s policy of developing a peace area into the field of international organization and it naturally came into conflict with those who considered the U N as a weapon in the cold war armoury

THE PEACE AREA AND THE COLD WAR

The concept of peace arose from India s determination to follow vigorously her policy of keeping away from the power blocs and of promoting world peace especially since 1950 when the world came very near another major war In this period the Indian Prime Minister began to speak about developing and enlarging a peace area Indonesia Burma and occasionally Egypt began to support India in this respect But if India s desire to develop a peace area took concrete shape in 1952 so did American attempts to create situations of strength and military alliances in Asia The American activities in this field in the opinion of the Indian Government led to a projection of cold war into the peace area The Indian spokesman vehemently criticized the proposed establishment of a Middle East Defence Organization and the final establishment of a South East Asian Defence Organization under Western auspices These were considered as interference in the internal affairs of the countries of this region The Government and the people of India also condemned the U S Pakistan military alliance which they considered as a menace to India freedom

THE EMERGENCE OF PANCH SHILA

In glaring contrast with these military alliances stood the Panch Shila the five principle on which friendly relations between India and China were based These principles are (1) Mutual respect for each other s territorial integrity and sovereignty (2) Non aggression (3) Non interference in each other s internal affairs (4) Equality and mutual benefit and (5) Peaceful co existence The Prime Minister of China and India also believed that if these principles were applied not only between various countries but also in international relations generally they would form a solid foundation for peace and security and the fears and apprehensions that were existing would give place to a feeling of confidence In a joint statement the Prime Ministers expressed their hope that in particular these principles would be applied to the solution of the problems in Indo China

The next step in the same direction was taken at the Asian African Conference held at Bandung Indonesia in April 1955 The Conference gave much thought to the question of world peace and viewed with great concern the present state of international tension and the danger of an atomic world war The Conference declared Free from mistrust and fear and with confidence and goodwill towards one another nations should practice tolerance and live together in peace with one another as good neighbours and develop friendly co operation Some of the principles to be accepted as a basis for developing such co operation were more or less the same as those enunciated in the Panch Shila and they were described as follows

Respect for the sovereignty and territorial integrity of all nations recognition of the equality of all races and of the equality of all nations large and small abstention from intervention or interference in the internal affairs of other countries abstention from the use of arrangement of collective defence to serve the particular interests of any of the Big Powers abstention by any country from exerting pressure on other countries

THE CONCEPT OF A RESURGENT ASIA

The Asian African Conference held at Bandung of which India was one of the sponsors, indicated another aspect of India s foreign policy the interest India showed in the awakening and resurgence in Asia The Asian Relations Conference held at New Delhi in March 1947 was the first international Conference held in Asia to voice the determination of the peoples of the continent to be completely free from foreign domination The conference was a non official and academic one but in the context of the then existing international situation it became as significant as a conference of governments A large number of the delegates who came to attend the conference represented the dominant national movements of the countries concerned By stating that colonialism was dead in Asia these delegates quickened its ending The similarity of the views expressed at the Conference substantiated the following statement of Pandit Nehru It so happened that we in India convened this Conference but the idea of such a conference arose simultaneously in many countries of Asia He also said that the most important thing about the Conference was that it was held By itself it did not achieve much But it did lay the foundation for future co operation between the Asian countries An occasion for such co operation arose in January 1949 when the Netherlands committed the most naked and unabashed aggression by attempting to destroy the Indonesian republic by force As we have noted already India at that time convened a conference of Asian States Australia Egypt and Ethiopia to discuss the situation arising from it Referring to the attitude of those who had assembled at the Conference, the Ceylon delegate observed We are not met here today to decide whether or not a wrong has been done We are met here as those convinced that a wong has been done Pandit Nehru the Chairman of the Conference, said One thing is certain there can be and will be no surrender to aggression and no acceptance of reimposition of colonial rule Thus Conference did achieve something By making articulate the Asian and African opinion on the Indonesian question it exerted a powerful influence on the decisions of the U N Security Council on this matter and thus facilitated the transfer of power from the Dutch to the Indonesian hands under international auspices

The next important landmark in the growth of co operation among the Asian African states was the formation of the Asian African group in the U N This group did not have a rigid organisation or a permanent secretariat but its establishment did help the taking of a more or less common attitude on the part of the members of this region in the United Nations on such common problems as colonialism racial discrimination and on issues of war and peace

This tradition behind the Bandung Conference was described by an Indian authority in the following words When therefore the Colombo Powers—Burma Ceylon India Indonesia and Pakistan—met at Colombo in April 1954 to discuss the attitude that they should take towards such problems of common interest as peace in Indo China the recognition of the People s Republic of China in the United Nations and the ending of colonialism in Tunisia and Morocco they were not meeting as strangers years of co operation in some form or other between most of the countries in this region had given the idea of Asian African co operation some place in the public mind and they were aware of it The Colombo Powers who sponsored the Asian African Conference had even before the Conference made their influence felt on world affairs On April 18 1955 President Sukarno of Indonesia proudly told the statesmen assembled at Bandung I think it is generally recognised that the activity of the Prime Ministers of the sponsoring countries which invited you here had a not unimportant role to play in ending the fighting in Indo China Look the people of Asia raised their voices and the world listened It was no small victory and no negligible precedent

The response to the invitation of the Colombo Powers was most encouraging all the countries invited excepting the Central African Federation found it possible to accept the invitation The countries

which sent their delegates to the Conference represented a majority of the world s population Naturally the decisions made there were of tremendous significance They related to economic cultural and political matters In regard to economic matters the participating countries agreed to cooperate on the basis of mutual interest and respect for national sovereignty and recommended that collective action be taken to stabilise international prices of and demand for primary commodities through bilateral and multilateral arrangements and by working together for this purpose in relevant international agencies It was also suggested that the export trade of Asian countries should be diversified as far as possible by the raw materials being processed before export wherever economically feasible

In the cultural field the Asian African Conference made the following recommendations (1) The acquisition of knowledge of each other s country by the publication of useful monographs improvement of the study of Asian African history and the establishment of institutes of Asian African studies (2) cultural exchange—by exchange of cultural missions teachers students and books by arranging festivals of music drama and dancing and (3) exchange of information by the establishment of news agencies and provision of tele communication facilities

The achievements of the Conference in the political field were not less noteworthy than others We have already noted the Bandung declaration which was more or less based on the *Panch Shila* In addition to signing it the participants in the Conference supported the Arab people of Palestine and called for the implementation of the United Nations resolutions on Palestine and the achievement of the peaceful settlement of the Palestine question The Conference deplored the policies and practices of racial segre gation and discrimination prevailing in large regions of Africa and elsewhere re affirmed the determination of the Asian African peoples to eradicate every trace of racialism that might exist in their own countries and pledged itself to use its moral influence to guard against the danger of falling a victim to the same evil in their struggle to eradicate it The Conference declared its full support to the principle of self deter mination of peoples and nations The Asian African states were agreed in declaring that colonialism in all its manifestations was an evil and that freedom and independence must be granted to all such peoples In particular the Conference supported the right of the peoples of Tunisia Morocco and Algeria to self determination supported the position of Indonesia in the case of West Irian urged the Netherlands Government to re open negotiations on the basis of the relevant agreements between Indonesia and the Netherlands and also supported the position of Yemen in regard to Aden

At the concluding session of the Bandung Conference the Indian Prime Minister reflecting the mood of the Conference said As we know Asia is no longer passive today it was passive enough in the past It is no longer a submissive Asia it has tolerated submissiveness too long The Asia of today is dynamic Asia is full of life Well if there is anything that Asia wants to tell the world it is this there is going to be no dictation in the future no yes men in Asia I hope nor in Africa We have had enough of that in the past We value the friendship of the great countries and if I am to play my part I should like to say that we sit with the great countries of the world as brothers be they in Europe or America

INDIA'S FOREIGN POLICY GLOBAL IN CHARACTER

Although India had taken a special interest in Asian and African questions India s foreign policy gradually became global in character In recent years this trend was very marked In the 1954 session of the U N General Assembly the leader of the Indian delegation for the first time referred to the German problem Marshal Tito the President of Yugoslav visited India in December 1954 and held informal and friendly con versation with the Prime Minister of India The Indian Prime Minister and the President of Yugoslavia noted that their two countries had devoted their energies both in the domestic and international

fields for the promotion of peace and methods of negotiation and conciliation as a solvent of international *conflicts and problems They proclaimed that the policy of non alignment adopted and pursued by their* respective countries was not neutrality or neutralism and therefore passivity as sometimes alleged, but was a positive active and constructive policy seeking to lead to collective peace on which alone collective security could really rest The two statesmen observed The President and the Prime Minister wish to affirm solemnly that the hope of advance of the peoples of the world and even the survival of civilization render our acceptance of the necessity of peaceful co existence not merely as an alternative but as an imperative The fact that Yugoslavia and India are pursuing similar general aims constitutes a firm basis for the *strengthening of mutual relations notwithstanding the geographical distance which separates them* and they are happy to feel that bonds of warm friendship and fraternity bind them together

In June 1955 the Indian Prime Minister also visited the Soviet Union at the invitation of the Soviet Government The personal contacts he established with the Soviet leaders at that time and with other Eastern European statesmen during his subsequent tour to their countries opened new avenues of co operation between India and those countries With the already existing ties with the British Commonwealth and close co operation with the United States in the economic field these new contacts will make India s international relations really global in character

During the Indian Prime Minister s visit to the Soviet Union he and the Soviet Prime Minister accepted the principles embodied in the *Panch Shila* and observed The wider acceptance of these principles will enlarge the area of peace promote mutual confidence amongst nations and pave the way for greater international co operation In the climate of peace thus created it will become possible to seek peaceful solution of international questions by the methods of negotiation and conciliation The Prime Ministers recognise that there have been signs of improvement in the general international situation In particular they welcome the lessening of tension in the Far East the advent of Austrian independence the improved relations between the Soviet Union and Yugoslavia and the keener and more general appreciation now discernible anywhere of the dangers of war in an atomic age

When the tension in the international field lessened and the cold war subsided to some extent one of the primary objectives of Indian foreign policy was fulfilled No doubt that this development was the result of many factors which were beyond India s control But it also cannot be denied that India and other countries which were uncommitted to either of the power blocs, did help a great deal in creating a proper atmosphere for lessening the tension in the world

One can safely say that this and other aspects of India s foreign policy were whole heartedly supported by the vast majority of the politically conscious people of India The criticisms directed against the Indian foreign policy are few and far between and are generally confined to some details of the execution or implementation of a particular aspect of the foreign policy It seems that within eight years of independent existence as a sovereign state India has gradually evolved a national foreign policy which is considered by the people to be in the best interests of the nation as a whole and therefore generally supported by them

A survey of India s position in world affairs will not be complete without mentioning the Soviet leaders visit to this country in November December 1955 The Soviet Premier N Bulganin and the Soviet Communist Party Secretary Khrushchev attracted large crowds and much attention in all parts of India The support they gave to India s case in Kashmir and Goa was enthusiastically welcomed in this country and it stood in glaring contrast with the stand taken by the Western powers on these issues The real significance of the Soviet leaders visit to India and their utterances in this country however lies in the support they gave to the Five Principles which are some of the basic concepts of India s foreign policy The

Prime Ministers of the Soviet Union and India, in a joint statement signed on 13 December 1955 referred to these Five Principles sometimes known as *Panch Shila* and declared These principles have laid down that countries differing from each other in their political, social and economic systems can and should co operate with each other on the basis of mutual respect and non interference in internal matters and follow a policy of active and peaceful co existence in the common pursuit of the ideals of peace and the betterment of the conditions of human life' In the joint statement reference was also made to the desire of the two countries to develop economic co operation between them and expand their trade relations As a first step in this direction an understanding was reached on the trade of some specific commodities between the two countries Although these developments do not automatically assure a great increase in the trade or other economic relations between the two countries in the near future they are important inasmuch a they open new avenues for India's external economic relations

One must not however come to any hasty conclusions about the growing co operation between India and the Communist countries This event does not in any sense alter the basic approach of India towards international affairs Prime Minister Nehru him elf evaluated it in the following words — The other day leaders of the Soviet Union came here We gave them welcome which they will remember and the world will remember It was a cordial welcome because we are not opposed to them We wished them well But wishing them well does not mean that we should lock up our own mind and intelligence and forget our own experience and our own country It is one thing to be friendly with one country and another thing to be unfriendly with another country There are some things which we can learn from Rus ia and we propose to learn them We want to learn from China also particularly in regard to development of co operatives In regard to some other things we propose to learn from the United States which is the most highly industrialised country in the world We propo e to learn from every counry and we are friendly with every country

INDIA AND HER NEIGHBOURS

In the year immediately following her achievement of independence India was fortunate in having maintained friendly and cordial relations with her neighbours excepting Pakistan And even with Pakistan her relations were by no means unfriendly There were of course friction and ill feeling between the two countries arising from the partition of undivided India which was for a very long time considered and treated as one political and economic unit there was even a war in Kashmir in which armed forces of both the coun tries were involved But the unique features of Indo Pakistan relations also contributed to a feeling of affinity between the two countries In a period when these relations were not very cordial it was possible for the Pakistani Prime Minister to refer to his counterpart in India as elder brother It was also possible for the people of Karachi to give a rousing welcome to the Indian Prime Minister when he visited that city and for the people of New Delhi to give an equally rousing welcome to the Pakistani Prime Minister when he visited their city Nor were these isolated events Almost simultaneously with the occurrence of many discouraging and distressing events many gesture of goodwill and friendship were exchanged by various groups of Indian and Pakistani people

There was another matter which free India had to face near her borders it was the problem of foreign settlements which was not strictly speaking a matter related to her neighbours because none of the foreign powers concerned was India s neighbour But as these posse sions were geographically a part of this country India s security and other interests were as much involved in them as in her relations with Pakistan and other neighbours These foreign settlements still remind India of foreign domination over her and there is an influen tial school of thought in thi country which holds that as long as these colonial settlements are not removed

the independence of India is not complete The Indian Prime Minister has very often said that these foreign pockets were an integral part of India geographically racially, linguistically, culturally, economically and socially and that they must be united with India Their existence in India was considered by the people of this country as an infringement of India s national and territorial integrity Moreover it is also feared that under the present circumstances owing to the involvement of these foreign Powers in the Big Power politics and struggle for world supremacy these foreign pockets will be a threat not only to India s independence but also to the peace area which India wants to establish and promote The French Govern ment have in recent years shown some imagination and statesmanship and have already transferred some of their possessions to India But Portugal still functions in an old fashioned way and tries her level best to preserve her colonies in India and elsewhere Although the Indian Government is in a position to occupy these foreign pockets by force it is not taking that step now It is hoped that the final transfer of all these territories will take place without much delay through negotiations and other peaceful means

INDIA'S HIMALAYAN FRONTIER

The problem of foreign settlements in India arose from the withdrawal of the British power in India and from the emergence of a sovereign independent state of India However there was another aspect of India s foreign policy which free India inherited from the former Government of British India that was the policy towards the Himalayan frontier In regard to this area the question of India s security raises some problems similar to those faced by the British in their period But there were also differences between the two situations For one thing the interests and objectives of the Government of an independent and democratic India are not the same as those of a foreign and Imperialist Government Moreover the situa tion on the other side of the Himalayan border has also considerably changed The new Government of India had to study the new situation and to formulate its policy in accordance with it

Tibet was one of the regions in the Himalayas with which the former Government of India was con nected In 1904 Lord Curzon the Governor General of India, sent a military mission to Lhasa and almost forced a treaty on the Tibetan Government The Central Government of China ratified the treaty two years later and agreed not to annex Tibet to her territory Britain on her part accepted China s suzerainty over Tibet on condition that China would respect its autonomy The Government of Free India inherited the former Government of India s treaty rights in relation to Tibet It was also realised in India that when radical and epoch making changes were taking place in China under communist auspices it would have been futile to expect that Tibet would remain unaffected But neither the Government nor the people of India were prepared for the events which took place in Tibet after 1950 On January 1st that year the Peking Government declared the liberation of Tibet as one of the basic tasks of the People s Liberation Army Following this declaration the Indian Government impressed upon China the desirability of settling the Tibetan problem peacefully It of course, conceded that the Sino Indian relations with regard to Tibet had to be placed on a new basis The Tibetan Mission which came to India on its way to Peking was held up in this country as a result of the delay in securing visas for Hongkong But unfortunately the Peking Government started its campaign of Liberating Tibet by October 1950 The Indian Prime Minister stated in the Indian Parliament that the Peking Government s military campaign in Tibet was a surprise and shock to India In a note sent to the Chinese Government on October 26, the Indian Government expressed India s regret and protest over China s action and stated that that action was not in the interests of China and world peace The Chinese Government in its reply maintained that Tibet was a domestic problem of China and that no foreign interference would be tolerated in that sphere Undoubtedly this action of the Chinese Government led to a resentment and disappointment in India There was a widespread feeling in this country that China had not properly appreciated the fact that

the Indian action in this matter was only a well meant advice by a friendly Government which had a natural interest in the solution of problems concerning her neighbours by peaceful methods The ill feeling between the two countries which was thus generated by the Tibetan episode subsided very soon as a result of many factor The Indian Government adjusted itself to the fact that a strong and mighty power had established itself as the central government in China and that it was bound to exercise more power than its predecessors in all parts of the country under its control Later events showed that the Chinese did not in any way interfere with India s interests in Tibet and that their activities did not in any sense infringe on India s frontiers

Another feature of the situation was that a Tibetan Mission went to Peking in March 1951 and concluded on May 23 an agreement with the Chinese Government by which the latter gained full control over Tibet s external affairs communications and trade as well as the integration of its forces with the Chinese Army The Agreement also provided for the autonomy of Tibet Apart from these developments connected with Tibet the recent trends in the international field generally were in favour of bringing China and India closer to each other than they were before On November 22 1954 the Indian Prime Minister while giving a report of his visit to China told the Indian Parliament The mere fact of a closer understanding between India and China is a factor of vital importance not only to those two countries but to others also Therefore the visit of Premier Chou En lai to India and my visit to China assumed a significance of some historic importance Apart from conflicts which exist in many parts of the world the major difficulty appears to be the prevalence of fear and the reactions to that all prevailing fear We discussed this matter in Peking as we had done previously in New Delhi and we agreed that everything should be done to remove this fear and apprehension from men s minds so as to produce an atmosphere which is more helpful in the consideration and solution of problems The leaders of China assured me that they were anxious to do this and I had no doubt that they meant what they said because circumstances that exist today demand such a course of action even from the point of view of national interest This statement largely reflects the most popular view in India on India China relations Modern China far from being considered as a menace to India is today regarded with great esteem in this country No other foreign power ha a higher prestige in India to day than the present regime of China

India s relations with Nepal are of a kind different from those with Tibet Nepal has an area of some 56 000 square miles and a population of nearly eight million It is an independent state and has secured admission to the United Nations India respects Nepal s independence and had supported Nepal s application for membership of the United Nations On July 31 1950 Nepal and India concluded a Treaty of Peace and Friendship and another on Trade and Commerce India also gave extensive economic and technical aid to Nepal

While Great Britain was ruling India she was dominating Nepal s politics and rulers to a great extent Independent India is not interested in following Britain s traditional policy in Nepal or elsewhere But she is not prepared to look with indifference towards the happenings in Nepal because of her strategic and other interests in that country The interests of Britain, the U S A and China still met and occasionally one group of interests even clashed with another in Nepal India was naturally interested in avoiding a situation in which Nepal would become a centre of conflict in the cold war The Indian Government realized that an economically and politically stabilized Nepal would have the necessary strength to resist foreign intervention India s policy towards Nepal was therefore directed towards helping it achieve this political and economic stability In March 1950 Indian attitude towards Nepal was explained by the Prime Minister in the following words Geographically Nepal is almost a part of India although she is an independent country Recently the Prime Minister of Nepal visited India We welcomed and conferred with this distin

tinguished personage and it was clear that in so far as certain developments in Asia were concerned the interests of Nepal and India were identical For instance, to mention one point it is not possible for the Indian Government to tolerate an invasion of Nepal from anywhere even though there is no military alliance between the two countries Any possible invasion of Nepal of which incidentally I have not the slightest apprehension would inevitably involve the safety of India

There were two states—Bhutan and Sikkim—in the Himalayan border with which India had special treaty relations The treaties concluded with each of them separately by India made her responsible for the defence and foreign relations of the two states It was therefore possible for the Indian Government to take steps to ensure India s security in this region

India s another neighbour is Afghanistan with which she had many cultural and friendly contacts in an early period Since the achievement of freedom by this country these contacts were revived and friendly relations were established between India and Afghanistan In 1950 a treaty of friendship was concluded between the two countries

RELATIONS WITH PAKISTAN

Establishing and maintaining friendly relations with all these neighbours were not a problem for India Not so the relations with Pakistan her biggest neighbour From the very beginning they caused much anxiety for the foreign policy makers of this country While formulating a policy towards Pakistan independent India was not just faced with the task of cultivating friendly relations with another state but with removing the ill feeling and suspicion which already existed between the leaders of the Muslim League and the Congress Party in pre independent India and between a large section of the Hindus and of the Muslims in the sub continent With the establishment of two independent states of India and Pakistan and the widespread occurrence of communal riots this ill feeling and suspicion were crystallised and became the basis of relations between the two states The Indian National Congress and its leaders had resisted the idea of partitioning the country until circumstances forced them to accept it In Pakistan there was a feeling that the Indian leaders had never whole heartedly accepted the partition of the sub continent and that they would try to undo the creation of Pakistan The Indian Prime Minister tried his level best to remove this suspicion and repeatedly declared that the Indian Government would turn down any proposal for the reunion of India and Pakistan To dispel this fear on the part of Pakistan the following specific provision was included in the India Pakistan Agreement of December 1948 Any propaganda for the amalgamation of India and Pakistan or of portions thereof including East Bengal on the one hand and West Bengal or Assam or Cooch Behar or Tripura on the other shall be discouraged This agreement was more or less adhered to by the two parties

Another problem arising from the partition of the country was the distressed state of minorities in the two states There was large scale migration of Hindus from Pakistan to India and Muslims from India to Pakistan The displaced persons in the whole sub continent numbered more than ten million The Pakistani Prime Minister at one stage was forced to declare that Pakistan would not take in any more immigrants from India The governments of the two countries recognized the magnitude of the problems arising from this situation and the two Prime Ministers declared on April 18 1948 The responsibility for protecting the lives and property of minority communities and for ensuring that they receive justice and that their civic rights are fully safeguarded rests on the Government of the Dominion in which the minorities reside The Prime Ministers also gave the assurance to all concerned that in Pakistan and India everyone should have equal rights opportunities privileges and obligations and that there should be no discrimination against the minorities and that their cultural and religious rights should be fully safeguarded Early on March 24 1948, the two Prime Ministers had stated Both Governments hope and trust that minority

communities will remain in their homes Indeed they are anxious that they should so They intend to do their utmost to help members of minority communities to stay They are convinced that this is in the best interests of all concerned The two Governments also made it clear that they would not put any obstacle in the way of those who, of their own will decided to migrate from one country to the other

It was one thing to make these declarations based on justice and common sense it was another thing to implement them For India it was not difficult to live up to these statements The leader of the Indian national movement Mahatma Gandhi was an apostle of peace and an ambassador of goodwill between the Hindu and Muslim communities When he found that the people of India were not living up to the ideals preached by him he courted martyrdom at the hands of a fanatical Hindu and thus by laying down his life created an atmosphere in the country which ensured the safety of the Muslims India's Prime Minister also continuously emphasised the secular character of the state and took firm steps against the activities of the Hindu fanatics of the country Moreover the Muslims in India though a minority constituted more than forty million people and this numerical strength gave them some self confidence All these were absent in Pakistan There was no Gandhi or Nehru in that country M A Jinnah, who was very often referred to as the Founder of that state fanatically believed that the Hindus and Muslims were two nations The Pakistan Constituent Assembly in one of its early sittings declared that the Pakistani Constitution would be based on Islamic Principles , whatever that term might mean and also decided that the head of the Pakistani state would always be a Muslim All these developments created a sense of insecurity among the Hindus of East Pakistan whose exodus to India still continues to be a problem for this country In West Pakistan there are no substantial number of Hindus The problem of the minority in Pakistan was therefore the problem of Hindus in East Pakistan It is perhaps impossible to solve this problem unless the ruling classes in Pakistan completely give up their theocratic approach towards political matters and decide to convert Pakistan to a modern democratic state

There were many other matters which were sources of friction between the two states The most important among them related to evacuees property canal water in the Punjab and trade and travel between the two countries Many agreements on these matters were concluded between the two governments Very often it was alleged by one party or other that these agreements were not implemented in the spirit in which they were signed Occasionally one of the two governments made some unilateral decisions to take some measures in regard to these matters In the case of the canal water there was a partly successful attempt to settle the dispute under the auspices of the World Bank Even when the disputes concerning these issues were not settled the differences of opinion on them between the Government of India and that of Pakistan were never so acute as to mar the friendly relations between the two countries

THE INDIA PAKISTAN DISPUTE ON KASHMIR

The dispute concerning the future status of Kashmir is of a different level It arose from the peculiar situation arising from the partition of the sub continent and the manner in which the power was transferred from the British to Indian hands The Plan of June 3 1947 which provided for the creation of two independent states of India and Pakistan virtually made the five hundred and odd native states of India independent Of course each one of them was allowed to accede to either India or Pakistan Some of the rulers of the states decided to make use of the provision to remain independent at least for the purpose of bargaining with the Government of India At that time the Indian leaders held the view that the mutually useful relationship which had developed between the different parts of India should not be abandoned by giving an exaggerated importance to the monstrous theory of sovereignty of the native states developed by the British rulers to weaken the political unity of India The Muslim League Party and the Pakistan

Government did not share the view At first they maintained that legally every state in India had the right to remain independent The Dewan of Travancore who was the head of the Government which was in existence in that state at the time of the partition of the Indian sub continent asserted that Travancore would remain independent and would not accede to India The leaders of the Muslim League blessed the Travancore Dewan s action and gave him moral support When the ruler of Junagadh a state which was geographically contiguous to India stated that his decision was to make his state a part of Pakistan, the League leaders welcomed this step although this was against the wishes of the people of the state The Pakistan Government also supported the attempts of the ruler of Hyderabad to make that state independent In the discussion on all these matters the Pakistani leaders were silent about the rights of the people of the states concerned But they took an entirely different stand on the future of Kashmir They claimed that as a matter of right that state belonged to Pakistan because the majority of the population in it were Muslims This was the beginning of the conflict in Kashmir

The State of Jammu and Kashmir is situated in the north west of the sub continent covering an area of 84 471 square miles In the West it borders on Pakistan and in the South Pakistan and India The vast majority of the population are Muslims The ruler of the state was a Hindu When the two independent states of India and Pakistan were established in August 1947 the Government of Jammu and Kashmir did not make an immediate decision in regard to the state s future But it was indicated that the state would have an ultimate association with Pakistan As a first step the Kashmir Government concluded a standstill agreement with the Government of Pakistan The object of this agreement was to provide for the continuance of economic and administrative relations between Kashmir and Pakistan on the same basis as had existed between Kashmir and India before the creation of the new Dominions But Pakistan authorities were not satisfied with this agreement They tried to coerce the state to immediately accede to Pakistan and for this purpose they cut off supplies of food petrol and other essential commodities to Kashmir The Pakistan Government also hindered in many ways the free transit of travellers between Kashmir and Pakistan Simultaneously with the application of economic pressure border raids were also organized against Kashmir The Kashmir Government protested to Pakistan against these activities and stated that if these raids continued they would be forced to ask for outside assistance But the raiders continued to pour into the state and there were large scale offensive preparations across the border in Pakistan including movement of troops At one stage five thousand raiders in green uniform participated in the operation and the state troops evacuated Fort Guen and some other places occupied by them The state government was compelled by these circumstances to request India for military aid They made such a request on October 24 1947 and also offered the state s accession to India The Indian Government accepted the offer and after the accession of the state to India defence communication and foreign affairs of the state became the responsibility of India Kashmir for all practical purposes became an Indian territory But even after the accession of the state to India Pakistan Government far from preventing the raiders from invading the territory of a friendly state gave them help Indian Prime Minister referring to Pakistan s complicity in the invasion of Kashmir asked Is this not a violation of international law and an unfriendly act towards a neighbour country ? Is the Pakistan Government too weak to prevent armies marching across its territory to invade another country or is it willing that this should happen ? There is no third alternative The Indian Government s repeated attempts to dissuade Pakistan from giving aid to the raiders met with failure The Indian army could very soon make the invaders withdraw from Kashmir s capital and neighbouring areas But so long as these raiders could go back to their sanctuary in Pakistan s territory and the Indian army was instructed not to cross the Pakistani border they could not be permanently stopped Finally the Indian Government decided to appeal to the United Nations to call upon Pakistan a member state to respect its international obligation and cease giving support to the aggressors

While referring the issue to the United Nations Security Council the Indian Government requested the Council to ask Pakistan (1) to prevent its personnel, military and civil, from participating in or assisting the invasions of Jammu and Kashmir state, (2) to call upon its nationals to desist from taking any part in the fighting in Jammu and Kashmir state, (3) to deny to the invaders (a) access to and use of its territory for operations against Kashmir (b) military and other supplies and (c) all other kinds of aid which might tend to prolong the struggle This preliminary request of India was unheeded by the Council The big Powers who could come to quick decision when there was an outbreak of war in Korea sidetracked the main issue of aggression in regard to Kashmir They began to place emphasis on such issues as the organisation of plebiscite in Kashmir to determine its future and arranging for negotiations between India and Pakistan under the auspices of a United Nations Commission Even a foreign journal like the *New Statesman and Nation* of London wrote on April 24, 1948 The Security Council is trying to avert this war It made a bad start, showing a disposition to brush aside India s case and deeply wounding India s sensibilities We do not deny that she (India) has causes to complain that the Great Powers at first favoured Pakistan for their own reasons Many in India also felt that one of the underlying factors behind the Security Council s decision was the Anglo American concern about their bases in Pakistan After extensive discussions on many irrelevant matters the Security Council on the initiative of the Western Powers accepted a resolution which mainly dealt with the organisation of the plebiscite in the state The Government of India expressed its inability to implement some parts of the resolution but stated that it would confer with a United Nations Commission which would be constituted in accordance with the Council s resolution

When the U N Commission visited the sub continent, the Indian Government presented to it documentary evidence to show that regular Pakistani troops were participating in the military operations in Kashmir In August 1948 the U N Commission noted that the presence of Pakistan troops in the territory of the state constituted a material change in the situation since the Commission was sent out by the Security Council The two Governments decided to abide by the U N Commission s appeal for the creation of peaceful conditions and on January 1 1949 they accepted its cease fire proposals The chief military authorities of India and Pakistan met in New Delhi on January 18 1949 and reached full agreement on the position following the informal cease fire of a fortnight ago Since then there has been no war in Kashmir But there was also no settlement of the dispute Some parts of Kashmir territory are still held by Pakistan and the remaining parts by India

The negotiations between the two Governments under the U N auspices did not lead to any settlement The crux of the problem was the fundamental disagreement between India and Pakistan on the origin of the problem and the role of the United Nations in its solution India continued to maintain that Kashmir was legally a part of her territory as a result of the Kashmir state s accession to India in October 1947 India also considered it her right and duty to station troops in the state for its defence The Pakistan Government did not agree with this view They maintained that Kashmir s accession to India was illegal and that Kashmir belonged to Pakistan because the majority of the population of the state who were Muslims would favour an association with her In principle both India and Pakistan accepted the view that the people of Kashmir should be allowed to express the views on the state s future But they could not agree on the methods to be employed for organizing a plebiscite for the purpose of ascertaining the views of the people

PAKISTAN'S MILITARY ALLIANCE WITH THE U S

In 1953 a new factor entered into Indo Pakistan dispute over Kashmir In the words of India s Prime Minister the proposed U S Pakistan pact had changed the whole context of the Kashmir issue it takes it out from the region of a peaceful approach for a friendly settlement bringing in the pressure of arms In

addition to Kashmir other aspects of Indo Pakistan relations were also affected by Pakistan s decision to join the power bloc led by the Western Powers Any kind of a military alliance between such a highly industrialized country like the United States and a pre dominantly agricultural country like Pakistan became a kind of subsidiary alliance and many Indians recalled that it was through a series of subsidiary alliances that India was conquered by the British in an earlier period The internal situation in Pakistan was far from stable During the past two years she had to pass through one crisis after another The Constituent Assembly was not in a position to prepare a draft constitution even after eight years of deliberations The rivalry between East Pakistan and West Pakistan the persecution of the Ahmedia community among the Muslims and of the Hindus in general and the fanatical and theocratic approach of many leaders towards political questions made the solution of Pakistan s problems very difficult To add to Pakistan s troubles the economic conditions of Pakistan showed signs of deterioration as a result of fall in prices of raw materials after the end of the Korean war There were also frequent cabinet crises in Pakistan and it was reported that the hands of the Pakistani military and foreign Powers were evident behind many of the political developments in Pakistan It was under these circumstances that Pakistan was moving towards a military alliance with the United States In India it was feared that Pakistan was compromising her independence and sovereignty by making a military alliance under the existing state of affairs with a strong military power like the United States It was also realised that a threat to Pakistan s freedom was a potential threat to India s freedom also

A close alliance between Pakistan and the United States would, in addition to leading to a diminution of Pakistan s sovereignty result in creating a sense of insecurity and an atmosphere of mutual suspicion and fear in this part of the world As early as on November 15 1953 the Indian Prime Minister expressed intense concern on the reported U S Pakistan talks and said that a military pact between the two countries would have far reaching consequences on the whole structure of things in South Asia On March 1 1954 he told the Indian Parliament As I have said repeatedly this grant of military aid by the United States to Pakistan creates a grave situation for us in India and for Asia It adds to our tensions It makes it much more difficult to solve the problems which have confronted India and Pakistan It is vitally necessary for India and Pakistan to solve these problems and to develop friendly and co operative relations which their geographical position as neighbours as well as their long common history demand These problems can only be solved by the two countries themselves and not by the intervention of others It is indeed this intervention of other countries in the past that has come in the way of their solution

In spite of the vigorous opposition by India the U S and Pakistan went ahead with their plan of concluding the U S Pakistan Pact On February 24 1954 the President of the United States sent a personal message to the Indian Prime Minister informing him of the U S Government s decision to extend military aid to Pakistan He assured the Prime Minister that this step did not in any way affect the friendship between the U S and India In this personal message the U S President tried to maintain that what his Government was proposing to do and Pakistan had agreed to was not directed against India The American President added If your Government should conclude that circumstances require military aid of a type contemplated by our mutual security legislation please be assured that your request would receive my most sympathetic consideration The Indian Prime Minister replied I thank you for your personal message which your Ambassador in Delhi handed to me on February 24 With this message was a copy of your statement in regard to the military aid being given by the United States to Pakistan I appreciate the assurance you have given You are however aware of the views of my Government and our people in regard to this matter Those views and the policy which we have pursued after the most careful thought are based on our desire to help in the furtherance of peace and freedom We shall continue to pursue that policy

Although the U S Pakistan Military Agreement of 1954 did considerable harm to Indo Pakistan relations renewed efforts were made later for direct negotiations between the governments for the settlement

of outstanding disputes In a birthday message to the Indian Prime Minister the Governor General of Pakistan stated that he and the Indian Prime Minister should unravel the tangles between the two countries In his reply to the Pakistani Governor General the Indian Prime Minister expressed his agreement with this view In January 1955 the Governor General of Pakistan visited New Delhi and attended the Indian Repub lic Day celebrations In this year there was also some correspondence between the two Prime Ministers reviving the method of direct negotiations for the settlement of India Pakistan disputes These developments restored to some extent the friendly co operation between the two Governments

RELATIONS WITH BURMA

Culturally and racially the people of India do not have the same degree of affinity with the people of Burma as they have with the people of Pakistan or even of Ceylon When India and Burma became free there was also the problem of Indians in Burma which was at that time considered to be a source of discord between the two countries It is to the credit of the statesm n of the two countries that in spite of many difficulties these two states could maintain very cordial relations with each other

In January 1948 Burma became a sovereign independent republic She decided not to be a member of the Commonwealth But in the months immediately following Burma s achievement of indepe dence the Government of the country was not in a position to maintan law and order within the country There were many revolts against the Government and some among them developed into a civil war Some of these revolts were led by political parties like the Red Flag Communists and the White Flag Communists From the military point of view the Government s chief danger came from the revolt organized by the Karens who considered themselves to be a national minority The Karens numbered one and a half million and their leaders demanded the creation of an independent and separate state The leaders of the Karens had a well trained ten thousand strong army and towards the end of 1948 they could control one sixth of the total area of Burma To add to the Government s difficulties its treasury was almost empty and Burma s export of rice and other commoditie was considerably reduced When Burma was passing through such a crisis the Government of India took the first tep to help her neighbour On February 28 1949 they convened an informal conference of the repres ntatives of the Commonwealth States at New Delhi to find ways and means by which their governments could help the Burmese Government to maintain law and order within the coun try The question of giving aid to Burma was further discussed by the Commonwealth Prime Minist rs when they met in London in April 1949 The proposals discussed at these conferences took concrete shape only in 1950 and in that year a programme of £6 000 000 aid to Burma was finally drawn up by the Commonwealth states As a token of friendship with and goodwill towards Burma the Indian Government s role in organizing and giving this aid to her is significant

India also gave Burma very able diplomatic support when the latter launched a complaint to the U N regarding aggression against her by the armed forces of the Kuomintang Government of Formosa During the debate on this matter in the U N General Assembly in April 1953 the Indian delegate expre sed India s deep concern over the Kuomintang troops action in Burma and said that any violation of the honour of Burma or any injury caused to that country was as significant to India as an injury to herself The Indian delegation gave its unqualified support to Burma s draft resolution on this matter

Although there was friendly co operation between Burma and India in these fields Ind ans in Burma and their rights over their property in Burma did create some problems It is estimated that at present there are 700 000 Indians in Burma Some of them are permanent settlers who willingly or under pressure of circumstances made Burma their home Some others are long term settlers such as government servants railway employees traders etc who wanted to come back to India after retirement Still others are

migrants who came seasonaly for a fixed short period to do rice planting during the rains and again during the harvest in summer A large number of these Indians occupied privileged positions in Burma s economic life As a result there was widespread anti Indian feeling and even occasional riots directed against Indians The Government of independent Burma took many steps which affected the proprietary rights of many Indians On January 3 1948 the Government promulgated the Transfer of Immovable Property (Registration) Act It prohibited the transfer of immovable property to any person who was not a citizen of Burma This act also vested the President of the Union of Burma with powers to grant exemptions This legislation resulted in a sudden drop in the value of property The Indian Government protested against this measure as a large number of Indians who owned valuable immovable property in Burma were affected by it Another step taken in the same direction by the Government of Burma was the Disposal of Tenancies Act also promulgated in January 1948 It provided for the expropriation of land owned by Indians and others without payment of reasonable compensation The Indian Government protested against this Act also Some other developments which raised many difficulties for a large number of Indians related to constitutional charges According to them Indians or other foreigners became ineligible to continue permanently in Government service Of course those who were doing technical work or who were otherwise indispensable to Burma were retained The citizenship regulations and the strict control of the transfer of money to foreign countries were some other governmental measures which affected unfavourably the conditions of Indians in Burma

Although these and similar developments created many difficulties for the Indians in Burma they did not at any time do any harm to the friendly relations which existed between Burma and India The trade and other economic relations between the two countries increased The Indian Prime Minister made a good will visit to Burma in June 1950 The Burmese Foreign Minister visited Delhi more than once for friendly consultations Recently the Burmese Prime Minister visited India on his way to Moscow A firm indication of the friendship between the two countries was the Indo Burmese Treaty of Friendship which was concluded on July 7 1951 The treaty provides that representatives of the two countries should meet together occasionally to exchange views on matters of common interest and to consider ways and means for mutual co operation It stated that the relations between the two countries regarding trade customs cultural contacts communications extradition of criminals immigration or repatriation of nationals of each state should be based on reciprocity Mutual recognition of the independence of each country was also contained in this treaty

INDIA AND CEYLON

India s relations with Ceylon were not so amicable as those with Burma Nor were they so unhappy as those with Pakistan On broad questions of foreign policy especially in relation to the cold war and big power politics India and Burma are in the category of the peace area countries Not so Ceylon The present Government of Ceylon share the Western Powers distrust of the Soviet Union and therefore, it is inclined towards associating itself with the Western Powers Although this aspect of Ceylon s foreign policy is sharply in disagreement with the foreign policies of India and Burma the real cause of conflict between India and Ceylon lies elsewhere

It is the problem of Indians in Ceylon There are nearly a million Indians among Ceylon s population of eight million The vast majority of them are labourers But a substantial section of them have a dominant position in trade and urban employment Many of these Indians were not interested in settling permanently in Ceylon They were birds of passage who wanted to make some money and spend their retired life in India On the other hand the Ceylon Government was not interested in giving citizenship rights even to those Indians who wanted to settle down in the country All these created problems of a complex

nature Since 1947 the Prime Ministers of the two countries held many meetings to find out a solution to them The differences of opinion between the two Governments mainly related to the conditions qualifying Indian residents for citizenship The procedure to be adopted in the examination of these qualifications also created controversy In 1948 the Ceylon Government made a unilateral decision and promulgated the Indian and Pakistani (Residents) Citizenship Act which provided for the acquisition by registration of Ceylon citizenship by Indians and Pakistanis who possessed special residential qualification This qualification mainly consisted of uninterrupted residence in Ceylon for a definite period—ten years before 1946 for unmarried people and seven years for those who were married The possession of an assured income was also considered as another essential qualification The applicant must also prove that he had generally manifested his intention to settle down permanently in Ceylon and that he should clearly understand that on his registration as a citizen of Ceylon he would be deemed to have renounced his right to civil and political status under any law in force in the part of India from which he migrated On June 9 1948 the Indian Prime Minister conveyed to the Ceylon Prime Minister his regret over the fact that the Indian Residents (Citizenship) Bill conformed to none of the proposals made as a fair basis for a settlement between the two Governments He requested for an assurance from the Ceylon Government that there would be no discrimination either legislative or administrative between citizens by descent and citizens by registration On August 19 1948 the Ceylon Prime Minister stated that he could give the required assurance only in respect of eligibility for franchise or for office but his Government did not propose to remove any legal restrictions in Ordinances such as the Land Development Ordinance the Fisheries Ordinance and the Omnibus Licensing Ordinance which might operate against certain classes of citizens by registration Following this and similar legislations in Ceylon the talks between the two Governments reached a deadlock A large number of Ceylon Indians at first boycotted the implementation of these actions Later however there were again successful negotiations between the representatives of the two Governments The two Prime Ministers met in New Delhi in January 1954 and finally came to an agreement The main features of this Agreement are (1) two Governments reiterate their determination to suppress illicit immigration from India to Ceylon (2) no change will be made in the Indian and Pakistani (Citizenship) Act which will be administered so as to dispose of all pending applications within two years (3) registered persons will be placed on a separate electoral register only for a period of ten years and will send representatives to parliament (4) the Prime Ministers will continue the practice of close consultation in matters affecting the mutual interests of their Governments There was a feeling among many Ceylon Indians that the Ceylon Government did not always act in accordance with the spirit of the Agreement But there was no doubt that the Agreement did promote good relations between the two countries

Although there was some difference of opinion between India and Ceylon on questions connected with the cold war there was a remarkable degree of agreement between them on such questions as colonialism and racialism Not being a member of the United Nations till recently Ceylon did not have the opportunity to become a member of the Asian African Group at the U N But she never failed to play her role in Asian affairs whenever it was possible for her to do so It was not an accident that along with India and other neighbours of India Ceylon took an active part in the Asian Conference on Indonesia which met at New Delhi in January 1949 because in the recent period all these countries had more or less the common experience of having been dominated by foreigners Another conference of some Asian States in which Ceylon took a leading part was the South East Prime Ministers Conference held at Colombo in April May 1954 The concept of the Colombo Powers arose from this Conference Along with the Colombo Plan this is an important landmark in the history of regional co operation between India and her neighbours



Maulana Abul Kalam Azad
Learned Statesman of the East

EDUCATION DURING THESE FEW YEARS OF FREEDOM

THESE few years of freedom have seen a substantial if not spectacular advance on many fronts and fields of our national life It is substantial if viewed against the background of what had been done and was being done before the country achieved its freedom Viewed against the magnitude of what has yet to be done and in the context of our pressing needs it appears to be quite inadequate Those who are optimists or complacent take the first view those who are pessimistic or just take delight in cynically decrying everything are either ill informed or take the latter view My own feeling is that while there is no room for complacency there is every justification for tempered optimism The partition and its aftermath had left us with a bitter and depressing legacy which even drove into the background the feeling of exultation and achievement which should have welcomed the dawn of freedom It is not necessary for me to recount what these problems were they are only too well known and many of them are still with us Is it not a matter of some satisfaction that we have been able to tackle some of the most obstinate and difficult of these problems with a reasonable measure of success and are now well set on the way to the building up of a welfare state ?

In this multi lateral programme of national reconstruction education occupies a place of special importance What has the country done in this particular field? It is easy and fashionable to indulge in light hearted sometime even irresponsible criticism of the country s educational effort and to underline the lowering of standards that has been going on for some time It is more difficult to understand and appreciate the basic and long range issues involved in the process of education because its perceptible effects take decades to mature and in any case they cannot be understood by persons who have no true discernment It may therefore be worth while to survey briefly what has been achieved during these few years and to indicate the lines of advance that have been laid down or are under active consideration

It is necessary to recall the background of the educational situation that was bequeathed to us by the British regime This is not the occasion either to trace its history or even give a factual picture of the situation as a whole Its two outstanding features were the inadequacy of the total educational provision and the unsatisfactory and unsuitable nature of the pattern that had developed during the last hundred years—out of tune with national needs and aspirations cramped by narrowness of objectives and uninspiring methods and techniques The country was therefore faced with the two fold problem of expanding educational facilities as quickly as possible and improving its quality and contents so that it may become an active factor in the historic project of rebuilding national life Now these two objectives though equally important are apt to become rival claimants when the total resources available are inadequate and meagre as compared to the magnitude of the need This is precisely the position in our country where for many years a controversy has been going on between those who press the claims of educational expansion and those who stand for qualitative improvement

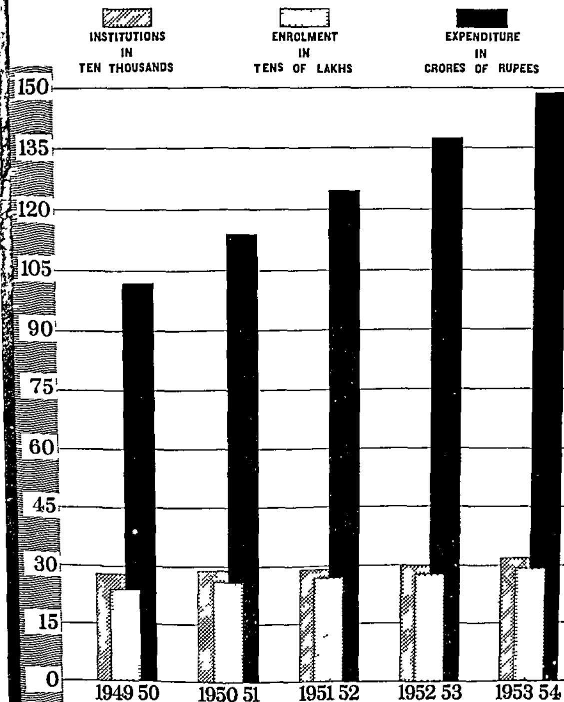
The present low percentage of literacy and the meagreness of the provision for education make it imperative that there should be a rapid and well planned expansion of education without which it would be impossible to ensure an intelligent functioning of democracy or bring about healthy and rapid economic and industrial development The Post War Plan of Education Development had contemplated the establishment of a full fledged system of national education within a period of 40 years Nationalist opinion however was critical of the Plan because it meant waiting till nearly the end of the century for a measure of educational provision which many countries already enjoyed A committee which was subsequently appointed in 1948 under the chairmanship of Mr B G Kher recommended that at least basic education up to 14 years of age should be made available to all children within the next 16 years But the paucity of available resources and personnel threatens to make both the plans abortive and in spite of our best efforts we are still very far from the goal of free universal and compulsory education for the age group 6 14 Compulsion has been introduced on a limited scale in many States—confined either to selected compact areas or big cities—and in the State of Bombay it has been applied to all urban and rural areas except to villages with a population of less than 500 persons In addition States have also been trying to expand education on a voluntary basis and in some of them a large number of new schools have been opened by private agencies during the last few years Under the pressure of this situation the Central Government has been taking an increasing interest in education and in the First Five Year Plan it provided more funds for education than has ever been done before So far as expansion is concerned it adopted two mildly bold measures of policy Partly to solve the growing menace of the problem of educated unemployment and partly to provide additional facilities for education the Ministry of Education formulated in 1953 a scheme for the employment of 80 000 teachers 30 000 in 1953 and 50 000 in 1954—either in existing schools where additional teachers are urgently needed or in new schools to be established in rural areas This scheme has been implemented with a fair measure of success It will provide a modest but honourable opportunity for service to a large number of educated youth who have been feeling increasingly frustrated because they cannot find work to do It will incidentally arrest to some extent the tendency of educated young persons to migrate from the villages to the cities which has been increasingly depleting the countryside of locally needed talent Under the same scheme it has been decided to open a number of Social (Adult) Education centres in urban areas inorder to provide educational facilities for adults and also to relieve to some extent the incidence of urban unemployment In addition to this emergency measure the Central Government also invited the State Governments to prepare plans for the regular *expansion* of Basic and Social Education on the understanding that subject to the availability of funds the Central Government will bear 30% of the additional expenditure on Basic and 50% on Social Education Under the present Plan a total provision of about 35 crores of rupees has been made at the Centre for various educational schemes Of these Rs 20

crores have been set apart for Basic and Social and Secondary Education about Rs 11 5 crores for Technical Education Rs 2 5 crores for University Education and Rs 1 crore for Youth Welfare and related activities In addition Rs 116 crores have been earmarked for educational development in the budget of the various States for the period of the Plan

In the formulation of this National Plan which is many sided the bulk of the resource have naturally been devoted to the agricultural technical and economic development of the country partly because these needs are always more insistent and clamorous and partly because the increase of the total national wealth from which education and other social services are to be financed depends on them The Education Ministry has however been pressing strongly but without an adequate measure of success for education being given a higher priority Apart from this question of finance the National Plan has on the advice of the Ministry of Education recognized and enunciated certain important principles of educational reconstruction which will have a far reaching impact on our future pattern of education It has recommended a shift of emphasis from the urban to the rural areas so that new institutions may be opened mainly in the villages It has favoured the idea of initially concentrating educational effort on selected compact areas and gradually extending it to cover a wider field This is the principle adopted in the establishment of Community Projects in which an all round campaign has been launched for the improvement of village life and conditions It is expected that including what are known as National Extension Centres these projects will cover 48 000 villages or about 1 10th of the rural population of the country during this Plan period and practically the entire country in the Second Five Year Plan Certain minimum educational and other targets have been laid down which are proposed to be achieved in these areas during the First Five Year Plan Thus it is contemplated that 60% of the boys and 40% of the girls in the age group 6 11 (instead of 40% and 33 at the start) should be enrolled in schools In the case of secondary schools the percentage of enrolments is proposed to be raised from 11% to 15% Similarly certain suitable targets have been suggested for work in the field of Adult Education These targets are not likely to be *fully* attained but they have provided a much needed stimulus for educational development

So much for the *quantitative* aspect What is perhaps educationally more significant is the *approach* that has been adopted for dealing with the question of the *quality* of education It is interesting to observe that the very same forces which demand quantitative expansion—the advent of democracy and political freedom the implementation of industrial and technological schemes the need for the liquidation of poverty disease and ignorance—require even more emphatically the re shaping of the pattern of education so that the younger generation may be able to meet the challenge of the new situation worthily and efficiently Here the difficulty is two fold Educational changes and improvements can only be brought about slowly sometimes quite imperceptibly while public opinion is impatient for and usually impressed by quick and tangible results Secondly the number of schools is so large that the carry over of new educational ideas and experiments to all of them would involve many decades of hard and patient work and a large number of trained competent and conscientious intermediaries between progressive educational thought and the traditional school room practices Educationists in India are therefore faced simultaneously with the colossal task of transforming educational ideology and techniques and training teachers and inspecting officers who may be able to work out the new creative approach in their day to-day activity

Naturally in any large scale programme of reconstruction the first necessary step is a carefull survey of the existing position an assessment of the needs and the formulation of suitable schemes for meeting them In this direction a good deal of work was done already and a reasonably satisfactory size up of the situation is available In addition to the Seargent Scheme which provided an outline survey of educa


PROGRESS OF EDUCATION IN INDIA
INSTITUTIONS IN TEN THOUSANDS
ENROLMENT IN TENS OF LAKHS
EXPENDITURE IN CRORES OF RUPEES
150
135
120
105
90
75
60
45
30
15
0
1949 50
1950 51
1951 52
1952 53
1953 54

tional needs at all levels from the primary to the University three other important Reports have been published, during the last twenty years, surveying in some detail the special problems of primary secondary and University education and making important and far reaching recommendations for their reform and re construction These are the Reports of Basic National Education Committee the Indian Universities Commission and the Secondary Education Commission In addition the Scientific Man Power Committee the All India Council of Technical Education and the Council of Scientific and Industrial Research have made a special survey of the problems of higher scientific and technical education I shall content myself here with referring to some of the most important features of their recommendations because they provide the back ground of the educational work done during these seven fateful years

The scheme of Basic National Education represents a radical attempt to reconstruct primary education on new lines so as to provide a suitable type of education for children in the 7 14 age group In spite of the piecemeal changes made from time to time the Indian school has continued to be mainly a centre of passive learning—formal unrealistic and divorced from life It had been subjected to a great deal of criticism from many quarters but this criticism did not make any great formative impact on the schools During the last decade of his life Mahatma Gandhi gave his special attention to education because he realized that it was not making an effective contribution to the improvement of people s life His insight into education was not derived from books or actual teaching experience but was the fruit of a first hand knowledge of men and matters and a clear eyed view of its significant objectives Some of his basic postulates which struck the orthodox educationists at the time as so many educational heresies have since been largely assimilated into our educational thinking and policy—for instance that education should be given through the child s mother tongue, that 4 or 5 years primary education is utterly inadequate and it must at least be given for 7 or 8 years on a free, compulsory and universal basis This has even been incorporated in the directives of national policy embodied in our Constitution What however provoked the greatest controversy at the time—and has since proved to be the most valuable and creative idea of the scheme—was the place he wanted to give to crafts and productive work in education He held very strongly that education could not be effective and realistic unless it was given to the child *through suitable types of productive work and crafts* like spinning and weaving or wood work or gardening and agriculture or smithy or pottery so that his head and hands *i e* his intellectual and practical aptitudes may be trained side by side Real abiding knowledge cannot be acquired directly from the spoken or the printed word—particularly in early childhood it is the bye product of significant socially worthwhile growing and essentially interesting activities Moreover it is only through participation in them that the whole personality of the child—and not merely a fragment of it called the memory or the mind—can be trained He was of the view that a comparatively smaller amount of knowledge properly assimilated into the mind and transmuted into character and action was more valuable for the individual than a great deal of haphazard unintegrated information which remained like a passive sediment The stress on the thorough learning of a craft continuously for several years was also inspired by the faith that real education of personality comes from doing a job with the maximum of efficiency and intellectual and manual integrity Slipshod work is not only a proof of bad workmanship but also betokens an uneducated mind and a weak unorganised character Mahatma Gandhi was anxious that a high sense of the dignity of labour should become integrated into national character and through the alchemy of work the people should be fused into a unity which would transcend the differences of caste and creed and class He saw that there was no better way of achieving this than through a type of education which would link the school with the community exploit the full educative resources of the environment and give the children an opportunity to participate in rural activities and crafts and acquire knowledge through work This would place the school where it really belongs—at the heart of community life—and its four walls would crumble away as it were enabling the sunshine and the breezes to play on it

There was another aspect of this scheme which is still a matter of considerable controversy and has not been generally accepted Mahatma Gandhi was an idealist in his vision, but a hard headed realist in choosing his means He had no use for paper perfect schemes which could not be translated into practice He wanted education to spread to the most distant hamlets in the country as early as possible and he knew there were not enough financial resources for the purpose So he came out with a really staggering new idea Why not let the children contribute through their work to the cost of their education? If they are doing craft work why should they not produce useful and marketable articles which could be sold so that the proceeds could be spent for national education? If craft is taught efficiently and seriously and not as the dilettante s hobby why should not children be able to produce such articles? The idea was so startling that it provoked a hornet s nest of opposition the children will be reduced to the status of sweated labourers the teachers will become slave drivers and the schools will degenerate into factories and will not be able to achieve their intellectual or social or moral purposes The Basic National Education Committee was itself rather wary in this behalf and made it quite clear that this productive or economic aspect of craft work should not be allowed to over shadow its educational aspect A little later when the Central Advisory Board of Education and the Government of India accepted the new pattern of education they too had some mental reservations regarding the feasibility of this aspect of the scheme Some basic institutions—notably those at the village of Sevagram which was the centre of Gandhiji s activities in his life time and quite a few in the State of Bihar—decided to explore this possibility carefully in order to find out whether without sacrificing educational objectives students could contribute something to the cost of their own education It must be admitted that their experience has been quite promising In the *best* of these schools it has been found that more than 50% of the recurring cost has been or could be met from the sale of articles produced Even in some of the ordinary basic schools under favourable conditions, at least the cost of the raw materials supplied can be recovered from the sale proceeds of children s craft work It would however be wrong to generalize too readily on the basis of these scattered experiments because it is not possible to reproduce on a mass scale the conditions—including the workers earnestness and enthusiasm—which characterise pioneering teachers and institutions On the basis of the available data the general trend of opinion at present is that all possible avenues should be explored to increase resources for educational expansion and if consistently with sound education children can make saleable cloth or grow vegetables and cereals or prepare article of paper or card board or wood or clay they should be encouraged to do so and the proceeds should be utilised for their education There is no doubt that if the financial resources of the country were adequate for its needs we *could* build up activity schools of the Western pattern where a large variety of educational occupations with the necessary equipment could be provided enabling each child to express his constructive abilities freely and without any restrictions But we cannot wait indefinitely for such conditions to emerge and must do all we can to provide educational facilities for the millions of children who are deprived of them at present So in addition to exploring all other ways of increasing educational finance opinion is veering round to the desirability of exploring more carefully the productive possibilities of Basic Education But, above all in the minds of our best educationists is the firm conviction that creative and constructive *work*, done cooperatively and with a social purpose is the finest *medium of education* and that its full potentialities can only be exploited when children are trained to do it with the highest measure of efficiency and integrity of which they are capable

I do not wish to convey the impression that we have achieved a considerable fraction of what we are aiming at We have so far been able to establish only about 34 000 basic schools (of which the majority is in one of the States) as against about 2 14 000 ordinary primary schools in the country and even these basic schools are of all kinds—good, bad and indifferent Considering the limitations under which we are working—of finances personnel organisation and training—this is not a matter for surprise Again there is

the great force of inertia against which our progressive educationists have to contend—inertia of the educational system and inertia in the minds of the teachers and educational authorities A certain concept of school has grown up and become firmly entrenched during the last hundred years It cannot obviously be eradicated within a few years nor can over a hundred thousand schools be transformed overnight But there is no doubt that this basic idea has an explosive quality and wherever it has been implemented b earnest and intelligent teachers, it *has* changed the musty atmosphere of schools beyond recognition and even where only *some* of its features like community living and community service have been tried it holds out the promise of a new educational dawn

The field of Secondary Education has been recently surveyed by the Mudaliar Commission which has tried to look upon the problem with fresh eyes and to envisage education not exclusively or even primarily in terms of courses text books classes or examination marks and certificates but as concerned with helping students to develop rich and disciplined personalities conscious of well defined social purposes The aims of Secondary Education as outlined in the Report stress the cultivation of qualities like clear thinking effective study habits use of manual skill interest in books as a source of profit and pleasure clarity and fluency in speech and writing an appreciation of beauty ability to face new problems and situations and a sensitiveness to social issues and urges Teachers are invited to give more thought to the end products of their teaching i e, not so much to the knowledge they impart as its impact on the mind and the personality The Commission has recommended strongly that in the new pattern of Secondary Education the over academic emphasis in the curriculum should be redressed that multi purpose schools with diversified courses should be established and due place given to vocational and technical subjects What precise form these multi purpose schools will take and how far they could replace unilateral schools will have to be worked out in the light of experience in the various States The Report underlines the need for raising the quality and standards of education and recommends that the total duration of secondary education to be given in Higher Secondary Schools should be increased to seven years three years of which will correspond to senior basic or middle stage and four years to proper secondary education envisaged as a self contained stage of education and not merely as a stepping stone to the college or the University It should equip the students to enter into different professions and services or into institutions providing specialised technical training At the same time it should enable the more promising and academic type of students to acquire sufficient intellectual maturity to enter the University for a straight three year course

The teacher s real business is defined as not to teach *what* to think but *how* to think for the technique of right thinking is far more important than the acquisition of encyclopaedic knowledge In this new approach therefore emphasis is to be placed *not* on the accumulation of information but on cultivating curiosity intellectual alertness and a lively quality of mind which will equip the students to live intelligently in this world of plural possibilities And not *only* intelligently but also cooperatively tolerantly and with charity and good will for without these qualities life can never become happy or peaceful or decent This accounts partly for the importance which is being increasingly given to various curricular and co curricular group activities in which qualities needed for democratic citizenship can find full play The secondary school is also expected to work out the implications of the basic education idea in its own way assimilating the principles of productive work community living and social service The Commission has visualised it as a great social instrument for securing equality of opportunity for all talented youth so that they may be able to break through the limitation imposed by their financial circumstances and receive necessary training for the type of work that they are most fitted to do This involves many complicated questions pertaining to the selection of students—which have got to be tackled—and a provision of scholarships and free places for poor and meritorious students Democracy is apt to degenerate into demagogy and it can make no genuine contribution to improving the

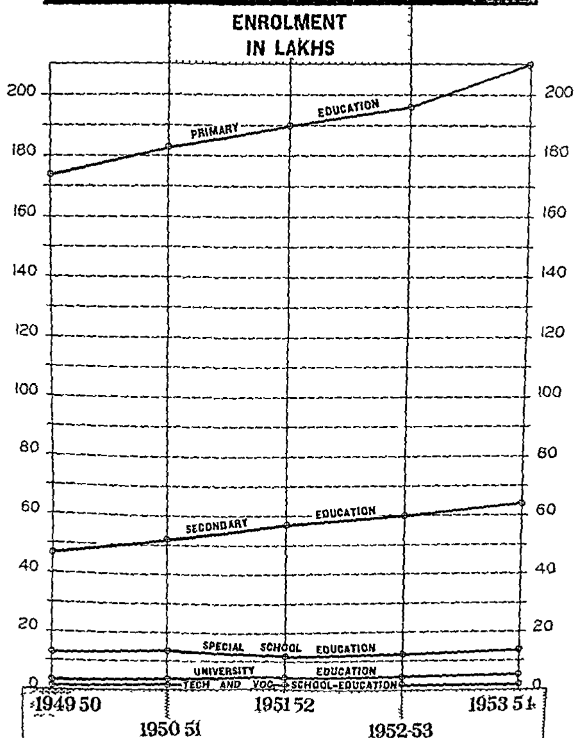
quality and standards of life for the common man if socially conscious and intelligent leadership on a decentralised basis is not developed and each local community does not participate effectively in the improvement and reconstruction of its collective life The tyrannies that control the minds of men in all the countries—fanaticism superstition racial prejudices and narrow sectional loyalties—are still undefeated and the Secondary School must take its place in the fight against them if national health and progress are to be ensured This is the approach that we are trying to instil in the minds of teachers through our Training Colleges our Refresher Courses our Headmasters Seminars and various other extension activities

AN EXPERIMENTAL APPROACH

I wonder how many even well informed and educated people are aware of the large number of interesting and significant educational ideas and schemes which are being worked out in the country as part of the First Five Year Plan and otherwise Education except when it touches on politics directly or indirectly, is not a headline catcher and its results are not easily perceptible in a visible form It is however essential that they should know something of these projects so that both their criticism and appreciation may be well informed and helpful I would therefore refer to certain projects of considerable interest and significance, initiated under the Plan to work out in a planned and experimental manner the full implications and techniques of Basic (and Social) Education Realizing that the present resources at its disposal were not sufficient to meet the full needs of educational expansion all over the country the Education Ministry came to the conclusion that Government should largely concentrate on assisting in the establishment of certain pilot projects and pioneering institutions in different States The object of this approach is to improve methods techniques and curricula so that in due course there may be a carry over of successful experiments and experiences from these institutions to others in the region and the general quality of education may be gradually improved This would provide useful tested experience for the next stage when educational expansion on a nation wide scale becomes possible

Under the Plan a number of such projects have been formulated which are actually in operation The most important of these is the establishment in *each* State of a compact unit of basic institutions consisting of a Post graduate Basic Training College with a demonstration school of senior basic standard a Primary Teachers Training College with two junior basic schools for practical demonstration a few Community Centres for social education a People s College for training village leaders and a library service for the villages in the neighbourhood These institutions have been provided with comparatively more adequate staff and equipment to ensure their functioning efficiently and experimentally working out sound techniques of basic and social education They are to work as a compact educational unit under coordinated supervision with the basic schools functioning as laboratories for the Training Colleges and the various agencies of social education being closely linked up with them so as to break down the walls that separate the school from the life around In all of them emphasis will be placed on productive work on correlating knowledge with life on social service and community activities After a reasonable period the impact of the whole group of institutions on the life of the local community will be carefully assessed If a school goes on working in a village or town for years without making its influence felt for the better in the life of the community then it has failed in one of its primary purposes and there is obviously something wrong with it This combined Operation Education as it were of the Community Centres and the basic institutions is designed to cover the entire community—the children as well as the adults—and help to raise the total quality of their life

Similarly certain rural primary schools have been selected in each State to be developed as schools cum community centres In the past most of the primary schools have been providing a somewhat formal and lifeless kind of education These reorganised schools are endeavouring to expand the scope of their activities, to prepare the children to participate in community life and to throw open their facilities to the local


PROGRESS OF EDUCATION
IN SPECIFIC FIELDS
ENROLMENT
IN LAKHS
200
180
160
140
120
100
80
60
40
20
0
PRIMARY EDUCATION
SECONDARY EDUCATION
SPECIAL SCHOOL EDUCATION
UNIVERSITY EDUCATION
TECH AND VOC. SCHOOL-EDUCATION
1949 50
1950 51
1951 52
1952-53
1953 54

adults in the evenings so that they may engage in various social cultural or educational activities in which they may be interested Some schools have added a modest community hall to their building for this purpose and necessary equipment—like games apparatus musical instruments material for craft work and easy books and papers—has been provided to attract adults with varying interests The idea is that the school should become the natural focus of the social and cultural life of the village and the teacher should be able to assume his natural position of leadership amongst the villagers

Another project which aims at the improvement of Secondary Education has drawn a number of Secondary Training Colleges into cooperation in order to undertake research on practical problems relating to the work of secondary schools and the ne essary financial resources have been placed at their disposal for the purpose These projects are rather modest in scope but varied in nature *e g* devising of intelligence and aptitude tests research in children s vocabulary analysis of text books improvements in specific methods of teaching etc The Education Ministry is to make the results of these researches available in due course to all interested persons and institutions

Another project which was initiated last year with the cooperation of the Ford Foundation and T C M aims at organizing an Extension Service in Secondary Training Colleges so as to improve the working of secondary schools in their locality The teachers are on the one hand to be drawn into the Training College *orbit as it were and through seminars refresher courses workshops and discussion groups they are to be* stimulated into creative work On the other hand the Training College staff will go into these schools study their problems on the spot and try to solve them through cooperative effort Twenty four Training Colleges are already working under this scheme to try out new ideas to improve training techniques and to produce materials for teachers guidance An all India Council of Secondary Education is coordinat ing this as well as other activities for the reconstruction of Secondary Education on the approved pattern

Reference may also be made to another experiment started in 1954 for the improvement of Text Books to which little attention was given in the past A majority of the school books in use at present are un satisfactory in point of content presentation and production Some of the causes responsible for this state of affairs could perhaps be removed through administrative action or provision of additional financial re sources But there are others which are due to lack of insight into the problems involved in the production of good text books including the technical know how In order to meet the pressing demand for better books the Central Government has established a small Bureau of Text Book Research which is critically analysing existing text books assessing their defects formulating criteria and directives for authors publishers and printers and it will later produce a few model text books for their guidance It is also proposed to in clude curricular research within the purview of this Bureau

Similarly a Central Bureau of Educational and Vocational Guidance has been set up by the Central Ministry and State Bureaus have been set up in some of the States to deal with the new and important prob lems which are arising as a result of the re organisation of education particularly at the Secondary level This Bureau is working on the preparation of necessary material required for the guidance of students in the choice of cour es and careers

These few instances of the new approach will show how the Education Ministry is dealing with the difficult question of raising educational standards in different types of institutions It is definitely commit ted to the view that the mechanical and uncritical expansion of the present system is detrimental to the educational interests of the country and the proper policy is to pave the way steadily and firmly for the development of an educational system which will be more closely and intelligently related to the needs and problems of the students as well as the adult community

THE EDUCATION OF ADULTS

The education of children and adolescents is however only one facet of the total educational situation of the country An equally important problem is the education of the adults the urgency and magnitude of which needs no underlining In this field considerable headway has been made in recent years partly as a result of the cumulative effort of earlier decades and partly in response to the demands of political situation and the emergence of democratic institutions In the first place the whole concept of adult education has been widened and deepened It is no longer regarded as synonymous with the teaching of reading and writing but is envisaged as a movement for raising the whole quality of adult life and embracing within it topics and activities like health and hygiene civic efficiency recreation simple craft training general knowledge as well as reading and writing Educationists are becoming increasingly convinced that in many cases starting with literacy will not do as the ordinary adult tired after the day s hard work (or failure to find work!) is not inclined to react favourably to dull lessons in reading and writing If instead something can be done to make his life more pleasant and meaningful or to add a little to his capacity to earn it would be much easier to win his interest and cooperation and the demand for literary and general education will follow in due course A good deal of useful knowledge can moreover be imparted even before the adult has acquired literacy with the help of suitable types of audio visual aids which traditionally too have played an important part in adult education in India In many States social education work has been going on for years with varying measure of success Thousands of devoted teachers and other voluntary social workers have taken it up as a labour of love and students in schools and colleges have also been running educational centres for the adult population In addition the cooperation of industrial concerns and of police and jail authorities etc has been obtained in many places in order to extend social education amongst labourers members of the police force prisoners and other compact groups who are easily accessible Considerable stimulus has been given to the movement in the Community Projects where trained social education workers are being employed to carry on their work side by side with other trained workers in the fields of medicine agriculture cottage industries etc in the common effort to re build village life Many informal agencies like mobile cinema and drama vans exhibitions tours and excursions etc are being pressed into service and attempts have been made to cat r to the needs of special groups through youth clubs women s clubs etc

I might call special attention to the efforts that are being made for the production of suitable reading material likely to be of interest to adults The paucity of such literature in the various Indian languages has made it necessary for the Central Government to take the initiative in this direction Considerable progress has been done in recent years through a happy cooperation between the Central and State Governments on the one hand and voluntary organisations working in this field on the other Several hundred booklets and pamphlets for neo literates and others dealing with subjects of everyday interest have been published and schemes for expanding and intensifying this effort are in hand The compilation of a People s Encyclopaedia to provide reading for pleasure as well as profit the preparation of commissioned books on subjects of general cultural interest—written specially for the not highly educated adults are some of the new ventures which have been taken up The Central Government have not only sponsored and financed the production of books but have also helped to organize Seminars and Literary Workshops to train writers for neo literates and published some material likely to be of direct use to authors publishers and book artists In this work they have had the welcome cooperation of international and national organisations like UNESCO the Ford Foundation and the Indian Adult Education Association In addition to books being written specially for the purpose prizes have been offered to authors and publishers of books for adults and children and the bulk purchase of copies of approved publications is done to stimulate nation wide interest in the production of literature of good quality that will meet the needs of an emergent democracy In order to place the movement on a more durable foundation it has been linked up closely with the growing library

nent artists and men of letters in indigent circumstances as also to young and promising but financially handicapped writers, musicians dramatists film artists and painters to enable them to carry on their work with peace of mind A National Art Treasures Fund has been set up under the Chairmanship of the Education Minister to acquire art objects for the National Art Gallery and the National Museum which are being developed as institutions worthy of the nation Another arresting and unique experiment in this field which deserves at least passing mention related to the encouragement of children s Art and Writing For the last five years the well known Shankar s Weekly has been bringing out an Annual Children s Number in which selections from the creative writings and self expressional drawings of children between the ages of 3 and 16 are published and prizes are awarded to the best entries under each age group As the competition is open to *all the children of the world*—34000 entries were received this year from 56 countries—it has not only helped to release unsuspected creative talent in children and given a new direction to the teaching of art and literature but it has become a most attractive medium for promoting international understanding and friendship at a most significant level amongst the children of the world It is only an unimaginative misanthrope who could belittle the importance of such a venture in this war minded and hatred tossed world While the inspiration for this creative venture came from an individual of imagination Government and public leaders have given enthusiastic support and encouragement Perhaps it may be claimed without over stepping the bonds of modesty that education in India has been readily responsive to ideas of internationalism and peace and its educationists are beginning to realize that *creative* education which releases repressed impulse and unwinds the complexes of fear and hate and aggressiveness can make the most powerful contribution to building up a mentality and climate of peace

This tendency is being further strengthened through the exchange of cultural delegations of artists, students and teachers with other countries through the activities of the Indian National Commission for Cooperation with UNESCO and through measures designed to promote education for living in a world community

This rapid and rather sketchy survey will give some idea of what we have been able to achieve as also of the long long road that we have yet to travel to attain our goal At every step in this journey we come up against the question of the financial resources whose inadequacy is the biggest hurdle in our way How is this to be crossed? Frankly I have no royal and easy way out to suggest As I visualize it the problem can be solved only gradually and by working simultaneously on many fronts The basic remedy is of course the increase in national wealth through agricultural and industrial development and to this our efforts are at presnt directed with a near grim determination Secondly there has to be keener realization of the high priority of education in all schemes of development Even within the present tight financial economy money is sometimes found for other projects—some to my way of thinking less urgent—more easily than for education! Thirdly by improving the quality of education and demonstrating its healthy impact on the life of the people public co operation in this great work has to be secured in the fullest measure Through such co operation we can often achieve what even Government resources are unable to do In one of the States for instance the head of a district administration was able to get about 600 primary schools built within a couple of years through the voluntary effort of local people—something which the Education Department had not been able to do in a decade out of its own resources! Fourthly we shall have to explore the productive possibilities of basic and post basic education for what they are worth and even if this enables us to meet the recurring expense on craft materials or help the children in meeting a part of their personal expenditure it will be a valuable asset Investment in education is an act of faith and imagination because, as I have already pointed out its returns are not only slow but not easily perceptible either To the extent that national policy is inspired by faith in education it will manage to find neces

sary funds with increasing success and this will in its turn contribute effectively to the improvement of national resources

I have attempted to provide a well balanced survey of our educational situation its difficulties as well as the achievements of the last few years in the face of heavy almost unbearable odds As I have said at the out et viewed against the magnitude of the work yet to be done these achievements are modest viewed against the background of what we inherited from the British regime they should give some cause for satisfaction and hope There is a tendency in some quarters to belittle what has been done—this may be due to lack of adequate information or commendable impatience to go forward more quickly or an attitude of cynical pessimism which delights in running down every thing rather than attempting a fair appraisal Lack of knowledge about what is being done in the field of education can be easily remedied by studying readily available material in the form of Reports and other published documents well meaning impatience should bear in mind that the progress of education as of all other scheme of national reconstruction depends on the resources available and cannot proceed far ahead of them and that the educational seed grows only slowly almost imperceptibly For the professional pessimist there is no remedy except to exchange his pleasant occupation of irresponsible criticism for actual participation in some worthwhile constructive activity which is a sure antidote against a sense of frustration I am as conscious as anyone el e of our low standards our ill equipped and overcrowded schools and colleges our under paid and dissatisfied teachers and the anxious problem of indiscipline which is looming so large in our discussions But I venture to suggest that given the conditions under which we have been working—the patently inadequate resources the limitations which are inherent in a democratic set up the fact that the various States are primarily responsible for education within their jurisdiction—no other country could have achieved *much* more during this brief period of seven or eight years of which the first three or four were devoted in a sense to a magnificent struggle just to *survive* as a nation after the holocaust of partition The educational measures that have been taken during this period are bound to bear fruit in due course not only because education is inherently a plant of slow growth but also because every educational reform has to contend against the inertia of the status quo of established ways of thinking and methods of teaching and of a personnel brought up in a different tradition To some extent therefore the surprize is not that more has not been done but that so much has been actually attempted and achieved

May I conclude by saying that the educational situation in the country offers a challenge which is as difficult as it is bracing ? The main problems have been surveyed with reasonable thoroughness and the Centre as well as the States have worked out their schemes of reconstruction To implement them successfully we need vastly increased financial resources as well as larger better trained and more efficient personnel But we need also better coordination of the various educational schemes in the States The Centre is attempting to provide necessary guidance for this purpose not indeed with the object of enforcing any rigid educational pattern on the country but for ensuring a broad national approach and a basic measure of uniformity particularly in standards and objectives In a free democratic country there may be—indeed there will be—many different roads and avenues but they should all eventually lead to a social and cultural Rome cherished in common A voluntary acceptance of the highest national objectives and purposes can only be brought about through a wisely directed educational policy which would be elastic without being ineffective Such a policy can contribute powerfully to evolving a pattern of national unity which will be able to accommodate differences and not be disrupted by them

IF before Independence the world outside thought about India at all, it was of an India which was called the brightest jewel in the British Crown an India of snakes and tigers, peacocks and elephants where lived princes *in unbelievable splendour Some might have heard about the Taj Mahal* and of the monuments and relics of vanished civilizations Others might have heard about the Naked Fakir' who dreamt of driving the alien rulers not by force of arms but by non violence in thought speech and action and by passive resistances To the Indologists India was only a country with a gorgeous past To a few it was a land of great yogis and sanyasis Very few knew that there was in India a pulsating intellectual life even though they may have heard about poets like Rabindranath Tagore philosophers like Sarvapalli Radhakrishnan scientists like Chandrasekhar Venkata Raman and Jagadish Chandra Bose and artists like Abanindranath Tagore they knew nothing of many who dreamt and wrought side by side with the fighters for India s freedom Hardly any thing was known of the dances and music of India and of the vigorous literature in the many languages of India

One of the first tasks which the National Government set before itself was to develop the cultural life of the country to bring the country into living contact with the cultural life of other countries and to give all encouragement and support to the scientific workers to the literary men to the singer the dancer and the artist

But a year or two passed before the National Government could bring order into the general administration of the country which had been disrupted by the sudden departure immediately before or soon after Independence of nearly all British and most Muslim officers in all branches of administration and defence The position had been made much more difficult by large scale influx of displaced persons both from the Western provinces and the Eastern provinces of the newly formed state of Pakistan

THE NATIONAL ACADEMIES

It is interesting to recall that the Asiatic Society of Bengal (then known as the Royal Asiatic Society of Bengal) had proposed even before the establishment of the National Government the formation of a National Trust for stimulating the development of Indian culture in all its aspects and had recommended the establishment of the academies of Arts of Letters and of Dance, Drama and Music

In 1949, the Education Minister of India summoned a conference at Calcutta of the representative of the Union and the State Governments and of a party of a large number of artists and art critics of repute from all over India to consider schemes for the promotion of art in the country The first result of this conference was the appointment of a Committee to formulate the constitution of a Central Advisory Board of Art the function of which was to advise Government on all matters relating to the promotion of the arts This was merely an interim measure pending the establishment of a National Academy of Art The Committee so appointed, met in December 1949 and recommended certain objectives to be set for implementation, and the Advisory Body proceeded to draw up the constitution of a small organisation to be called the Bharat Kala Samiti which was to consist of 7 practising artists 5 art critics and 3 officially appointed members This Samiti met for the first time in April 1950 and among other things a sub committee for publication was appointed which later drew up a scheme to publish albums of paintings sculptures and bronzes In 1953 the Bharat Kala Samiti was dissolved and the National Academy of Art (Lalit Kala Akadami) was created and it was formally inaugurated in August 1954 The primary function of this Academy is to encourage and promote the study and research in the fields of painting sculptures, architecture and applied arts The academy is also to coordinate the activities of the regional or State Academies promote cooperation among art associations encourage exchange of ideas between various schools of art publish literature on art and foster national and international contacts through exhibitions and exchange of personnel and art objects

The National Academy of Art functions through a General Council with an Executive Board and has a Finance Committee and other standing committees as may be required to carry out the work of the Academy The General Council consists of one representative of each of the States 5 nominees of the Government of India 15 representative of the Art Associations recognised by the Academy and 9 eminent artists elected by the General Council The Academy has begun its publication programme by bringing out a portfolio of contemporary paintings and has also published a set of 12 picture postcards in colour mostly of Rajput paintings a brochure entitled Indian Art through the ages an album of Moghul miniatures and an album of Kangra paintings Among its forthcoming publications are an album of Udaipur paintings and a brochure of Gujarati paintings The copying of the frescoes at Badami in the Bijapur District of Bombay in the same size as the originals is already in progres

An important programme of the Academy is a detailed countrywide survey of the surviving folk arts and crafts and the working conditions of the craftsmen A beginning has already been made with a survey in West Bengal and a survey to cover the Punjab is also being taken up The first Exhibition sponsored by the Academy was that of Canadian paintings organised by the Academy of Fine Arts Calcutta which was shown in Delhi Calcutta Madras and Bombay Another exhibition that of Hungarian folk arts was opened in Calcutta on 14th February 1955 which was also on view in Bombay and Delhi The first national Exhibition of Art to be organised by the Academy was inaugurated by the President of India on March 22 1955 in Delhi selected items from this Exhibition were subsequently shown in other important centres of the country The Academy has instituted prizes for the best exhibits the highest being a gold plaque and a cash prize of Rs 2000 There are a number of other awards two cash prizes of Rs 1000 each two of Rs 500 each and four of Rs 250 each for other deserving exhibits

In March 1951, a conference on letters was held in Delhi which recommended a draft constitution for a National Academy of Letters (Sahitya Akadamy) for the encouragement and coordination of literary activities in all the Indian languages. The constitution of this academy was drawn up in consultation with the State Governments and important literary societies. The supreme authority of the Academy vests in a General Council consisting of one nominee of each of the Indian States, representatives of the 14 languages of India enumerated in the Constitution, representatives of the Universities of India, 5 nominees of the Government of India chosen for their eminence in the field of letters with two representatives each of the National Academy of Dance, Drama and Music and of the National Academy of Art. The General Council works through an Executive Board. The Academy requested the States to recommend the names of authentic literary organisations as well as eminent writers and scholars in their respective areas. The main objective of the Academy is to make the people of India conscious of the essential unity of Indian literature, written in many languages. One of the first tasks the Academy has set before itself is the publication of a national bibliography of Indian literature. This bibliography will include all books of significance and of literary merit published in the 20th century in the fourteen major languages specified in the Constitution of India as well as books in English published in India or written by Indian authors. The term literature for the purpose of bibliography has been liberally defined so as to include all important books written in all the languages. The other activities of the Academy include the publication of a bibliography of all books published in India since 1954, a Who's Who of Indian literature, edited texts of all the works of Kalidasa, prose, poetry, drama and short stories in the Indian languages and the publication of a standard work in English and Hindi of the history and development of modern Indian literature. The writers and scholars in each language have been invited to recommend the best works, both ancient and modern, in their languages which in their opinion are suitable for translation into other Indian languages. The Government of India announced prizes of Rs. 5000 each for the most outstanding books published since Independence in the fourteen languages. The books are chosen by the National Academy of Letters in consultation with the appropriate Advisory Boards. In 1955 altogether 12 awards were made, no composition in English or Sanskrit was considered sufficiently outstanding to merit the award.

The Academy will have also a maximum number of 21 Fellows who will be nominated by virtue of their established reputation as literary men on the pattern of the award to the membership of the French Academy.

The first of the National Academies to be established was the National Academy of Dance, Drama and Music (Sangeet Natak Academy) which was inaugurated in January 1953. Its chief objective is to foster and develop Indian dance, drama and music and to promote through them the cultural unity of the country. The Academy is to coordinate the activities of regional organisations, promote research, set up training institutions and sponsor cultural exchanges in the field of dance, drama and music. The Academy has a General Council consisting of representatives of the organisations connected with drama and music, two representatives each of the National Academy of Letters and the National Academy of Art, two representatives each of the Academies of Hindustani and Carnatic Music, five nominees of the Central Government and eight eminent artists in the field of dance, drama and music elected by the General Council. It also has an Executive Board, a Finance Committee and other standing or *ad hoc* committees which may be appointed as necessity arises. The main task that the Academy has before itself at present is the establishment of [illegible]ies in the States. These have already been formed and are actively working in [illegible] Bihar, Hyderabad, Madhya Bharat, Madras, Orissa, Saurashtra and Rajasthan. The National Academy has built up an impressive library of books, rare records of vocal and instrumental music and documentary films. It has accorded recognition to about 56 institutions and given generous grants to various organisations. Its programme of work includes the Institution of awards



for dances drama and folk dances administration of the President s Awards for music sponsoring of annual *drama festival, organisation of films seminars, filming and recording of eminent musicians and the collection* of Rag and Thal paintings

Indian dancing is gradually coming to be recognized as one of the priceless artistic heritages of the world Dancing in India originally developed round the temple as one of its major rituals in Northern India it also flourished in the Royal courts and in the houses of big landowners , only in comparatively recent years it has been brought before the public on the stage Broadly speaking Indian dancing can be divided into two types—the Tandava the Lasya Tandava is vigorous and virile while Lasya is characterised by grace and delicacy Every dancer is required to acquire both the movements so as to preserve a balance between vigour and grace Gestures or *mudras* are the essence of Indian dancing any story or incident or shade of emotion or the idea of well known animals and flowers can be eloquently expressed through them A mastery of this gesture language is all important in a good dance performance and no dancer is great unless he or she has the capacity to convey a wide and subtle range of ideas through these *mudras*

There are four main schools of dances in India Bharata Natyam Kathakali Kathak and Manipuri Bharata Natyam perhaps represents the purest and the oldest form of the Indian tradition This is always executed by a single dancer generally a woman dancer The music consists of a singer or singers and a group of drummers The sung music functions like a commentary on the dance

Kathakali of Malabar is the most dramatic form of Indian dancing It literally means story play' and employs many dancers usually drawing its themes from the epics It is the popular art of Kerala in South India Formerly almost every aristocratic family of Kerala had a troupe of Kathakali actors and musicians under its patronage Then there was a change as a result of the young people receiving a western education and Kathakali dancers fell on difficult times But fortunately there has again been a changed outlook in the country largely due to the efforts of the great Kerala poet Vallathol and his now famou Kerala Kalamandalam Kathakali Institute founded in 1930 This ancient art with its varied grace and subtleties of dramatic expression has again become a living tradition Kathakali is a complex art composed of three fine arts acting dancing and music It is a pantomime in which the actors do not speak or sing but interpret their ideas and emotions through a highly sensitive medium of *mudras* appropriate gestures picturesque hand poses and vivid facial expressions perfectly intelligible even to the uninitiated Such an elaborately codified system of a dumb yet eloquent kind of expression is the unique distinction of Kathakali and it may justly claim to be one of the riche t and strangest gifts which India has presented to the world Language of gestures and *mudras* adopted is used as a substitute for spoken language and is as much suited for the purpose of dance as for drama Musicians sing and the meaning is translated by the actors at once into this silent language of facial expressions body attitudes and poses and figuration of the hands The actors act and dance in harmony with the rhythm as well as the sense of the songs Though Kathakali is essentially an art of Kerala it is now widely spread The simplicity of external atmosphere the absence of any arrangement for scenery or of stage lighting the manly vigour of its dance the fullness and profundity of its historionic expression bold and forceful in every line and the dancers with their most wonderful head dresses and elaborate facial make up hold the spectators spell bound

The Kathak school which is peculiar to North India shows the impact of the Muslim influence While its elegance and sophistry are derived from the Mughal Court its technical evolutions and complicated rhythms are of indigenous origin and there has been no departure from the traditional fundamentals

The Manipuri school is essentially lyrical and on the whole lighter Manipuri dance belongs essentially to Manipur in the north eastern border of Assam, and was made popular by Rabindranath Tagore by incorporating features from it in his dance dramas Manipuri dancing is in four forms Laiharoba Astra Vidya Chalan Gathan and Rasa Lila The first of these is the oldest form of dance known in Manipur and is in the form of a dance drama composed of solo duet and group dances depicting the stories from the Manipuri epic The dances are simple their rhythm movements and expressions appear to be somewhat unvaried and bordering on the primitive But the group dances in which as many as a hundred or more usually participate have a vivid and vigorous appeal with colourful costumes and its powerful grouping of the dancers The second type consists of acrobatic dances There are sword and spear dances mock fights and war dances which call for great agility and supple strength which can only be acquired after years of training In olden days it was almost compulsory for men to learn these dances though sometimes there were also women who performed these dances and there are even now living some old women practitioners of this type of dancing

The third type is truly a devotional dance in which Manjira Karatala and Khol (the Manipuri Mridang) constitute important accessories This dance marks the advent of Vaishnavism in Manipur The dancers singing the devotional songs move to the accompaniment of the drumming on the Khol in slow rhythmic movements while the leader comes forward and dances in a series of quick and intricate foot patterns and striking postures The classical technique is still preserved and practised to a certain extent in this type of dances The last type the Rasa Lila is the principal dance of Manipur It depicts scenes from the life of Shri Krishna in a series of elaborate dances supported by songs and is now the most popular of all Manipuri dances The dances of Manipur classical or otherwise have rhythmical subtlety slow suspense speed lyricism drama The parts of each dance are functionally interdependent and the whole is illumined by *a beauty that transcends the suggestive allurements of mere sensual grace Profoundly they express* the inwardness of life and love

In addition to these four schools of dances there are folk dances of the countryside Every part of India has its folk art solo group and dance dramas each expressing the uniqueness of the life and thought around Essentially all Indian dances have a fundamental kinship Their aesthetics their theories and practices are derived from the same source They point to an ancient art, highly developed and highly stylised

In the Kathakali and the Manipuri dances the dance and the drama are closely knit together In fact the Kathakali can rightfully claim to be the noblest surviving example of the traditional theatre We find drama and dancing closely associated in the Bhagavata Mela Nataka in Tamil Nad especially at Tanjore in the Yakshagana of the Carnatac in the Kuchipudi natya based on technique derived from Bharata Natyam in Andhra

The ancient dramatic tradition generally weakened in the north especially after the Muslim invasion But the popular drama flourished as in the jatra of Bengal in the Ram Lila of Uttar Pradesh and in the episodes from the life of Krishna staged by the Rasadharies of Mathura in the country round Brindaban in the Lalita of Maharashtra and also in performances of the folk drama in Gujarat But the influence of the West created a bias in favour of elaborate stage technique and the indigenous folk theatre came temporarily into disrepute There has lately been a revival of interest in the folk dramas and the part that our National Government has played in infusing a new life into the folk theatre is of great significance The National Academy of Dance Drama and Music has as one of its aims to foster the growth of a modern Indian theatre with a national identity of its own by giving financial and other assistance to its practitioners

and by conducting research and publishing books to help the national theatre to develop along traditional lines The aim of a national theatre would not be to suppress the strong individualism characteristic bias and the particular idiom of the various linguistic areas of India in favour of uniformity but rather to foster these very characteristics so that the inherent richness of these traditions is preserved

Indian music has been cultivated as a living art for nearly 3000 years The ancient music of India ha been handed down from the master to the disciple through the generations and an intimate and secret association between them was considered intrinsic to the inculcation of Indian art In the olden days Indian music was sung in the royal chamber where the patron was content to hear the artist sing in response to an inner creative urge Or the song was heard in the sanctum of a temple while the musician offered his devotion to Cod The public concert was unknown and this chamber music did not have to subserve popular taste A guild of hereditary musicians thus grew up under the protection of an aristocratic society for its exclusive entertainment

There are today two principal schools of Indian music the Hindustani school of the North and the Carnatic school of the South The differences between northern and southern music are purely one of style The music of the north has been subjected to Persian and Arabic influences but Carnatic music has preserved the purity of its traditions Some of the fine musical instruments were brought by the Persians to India , and Persian influence has in the main enriched North Indian music

The differences between Indian and Western music may be said to be fundamental They relate to content as well as to technique The devotion and subjectivity of Indian music are both the products of a different cultural atmosphere and its ethos has been preserved for posterity in its music Indian music is a melodic art while Western music is harmonic It has been aptly said that Western music is like a vast building where every brick arch and pillar falls into its appointed place to produce a unity conceived by the architect or that it is like a big picture whose various elements blend to produce a well composed whole Western music thus impresses its listner as much by its range as by its harmony The value of a note in Western music is judged by its adaptability to the central harmony In fact it serves no purpose by itself Its meaning is fixed only in relation to the other notes of the chord heard in accompaniment Even when a Westerner hears an unaccompanied melody a European folk song for example the music becomes complete to him only when his imagination has provided the implied harmony This is because European music is a compromise between melodic freedom and harmonic necessity It is harmony that has made the triumphs of orchestration in the West possible

It has to be realized that in order to appreciate the purely melodic Indian music the ear must be trained to receive pure intonation The concept of harmony either implied or explicit is precluded by its very nature The introduction of harmony would even violate the melodic unity of a song The greatest Indian music is mainly vocal music and melody is a peculiar quality of the voice The highest art is wholly extempore and the Indian musician is a creative artist While rendering a particular *raga* he has considerable scope for improvisation Unlike the musical artist in the West whose merit lies in the exact reproduction and interpretation of the works of great composers the Indian musician improvises within the framework of a given theme There are certain characteristics of Indian music that follow logically from its melodic nature the primacy of the melody a particular relation of the accompaniments to the song the importance attaching to improvisation and the absence of any serious concerted music Another feature of Indian music is its elaborate grace To the Western observer who is used to hearing a number of notes simultaneously grace appears to be a superfluous elaboration especially when it does not form part of the main structure and is merely added to the note

The Indian melody is governed by the *raga* mode is the nearest equivalent to it in Western musical parlance but the *raga* is a more definitive concept It has been defined as the melody mould or the ground plan of a song which the master first of all communicates to the pupil and to sing is to improvise upon the theme thus defined It is a selection of five six or seven notes distributed along the scale The notes and their sequence are thus both important and there is no modulation of any kind Modulation and free change of key are indeed the conditions of harmony as in Western music In all there are 72 septatonic *ragas* and each of them is the basis of several pentatonic and hexatonic *ragas* Some of the *ragas* have an interesting origin Some like the *Pahari* are derived from folk songs while others like the *Jog* are based on the songs of wandering ascetics There are some *ragas* which excite devotional moods and others are amorous in their inspiration The theme of Indian music is another point of difference from Western music A piece of Western music can tell a story or depict an external situation It is thus the objectified story of an observer beholding a world without As opposed to this Indian music is real and relevant only in subjective terms It employs the method of subjection and not description It is therefore no accident that the preponderant theme of Indian music should be human and divine love Actually the two are not considered mutually incompatible for they both referred to the intense participation characteristic of valid human relationship Underlying all classical Indian art there is a suggestion that the erotic and spiritual instincts in man are essentially allied and derive from a common basis

Though Indian music has its finest expression in vocal music it is not that Indian instrumental music is not also highly developed The variety and number of the musical instruments in use in India rival those of Europe Of these the Vina is probably the most outstanding There are two varieties of this instrument in popular use today one in the north and the other in the south It consists of a fretboard mounted on two large gourds and seven strings Four of them actually pass over the frets the other three serve as a drone to provide a pendal point background The instrument is played by a deflection of the strings which are plucked by the right hand and the notes made with the left It is said to be capable of an infinite number of nuannces of microtonal grace

The Sitar is a popular stringed instrument in North India Its invention is credited to a Persian poet at the court of Alauddin Khilji in the fourteenth century It has seven strings and is played by metal nails fixed to the player's fingers

The Sarode is in common use in Bengal Uttar Pradesh and the Punjab It has a deep seated tone and is played with a plectrum

The Mridanga is perhaps the most developed and the most ancient of all the percussion instruments in the country It served as a drum for chamber music in olden times It is now used as an accompaniment for both vocal and instrumental music The Mridangam of the south and Pakhawaj of the north are designed on the same principles and differ only in minor details

There had been for some time amongst the western educated Indians a lack of interest in the classical music of India as also in the rich folk music of the various states of India The National Government has done a great deal to educate public taste by encouraging the holding of music conferences by non official organizations by financial and other assistance and by All India Radio putting on the air examples of Indian classical and folk music There is already a great interest all over India as can be seen say at Calcutta where literally hundreds who are unable to secure seats at the Music Conferences held in the city, squat outside the theatres where these conferences are held throughout the night and listen to the music relayed by the organizers through loud-speakers

In the past, musicians and dancers were attached to the local Princes and rich landowners on whose patronage they were sustained—the alien rulers of the country did not appreciate Indian music or even classical Indian dancing and extended no patronage to the practitioners of these arts The National Government has not only lavishly extended its patronage to the artists painters and sculptors musicians and dancers but is doing a good deal to foster art consciousness among the masses

The Academy of Dance Drama and Music sponsored the National Drama Festival organized by the Delhi Natya Sangh the first of its kind in India and inaugurated by the President of India on the 22nd November 1954 During the festival which lasted well over a month 21 plays in 14 Indian languages including Sanskrit and a Greek play in English were staged These plays were selected out of 102 plays which had in the first instance been staged during the regional drama festivals at 18 different centres The Theatre Centre India utilized the festival for organizing symposia on subjects like the place of music and dance in drama the problem of the verse drama The plays were divided into three categories traditional folk and modern

CULTURAL SCHOLARSHIPS

The National Government instituted scholarships of a monthly value of Rs 250 each for young workers who had shown outstanding promise in cultural activity such as fine arts music dance drama and films These scholarships are open to our people between 18 and 35 years of age and the scholars are selected by a Selection Committee set up by the Ministry of Education Over 2000 applications were received out of which 49 selected scholars were chosen There is now a tendency among the students of more than average merit to take up studies on natural sciences and technological subjects to the neglect of the Humanities This is understandable in view of the large scale development plans for industrialization But the National Government realizes that it is essential that this imbalance should be corrected and has instituted a number of research scholarships in the Humanities to encourage the study of these subjects

FINANCIAL ASSISTANCE TO ARTISTS, WRITERS AND ORGANIZATIONS

Artists and writers who occupy eminent positions in their particular fields but are in straitened circumstances are being assisted by the National Government by regular monthly grants and also by the payment of lumpsum grants

There are several organizations engaged in cultural activities and in advancing the cause of literature but which badly need financial assistance both to continue the work they are doing and also for the expansion of their activities These have been liberally assisted by the National Government Both recurrent grants and building grants where necessary have been made to several institutions including the Mahabodhi Society of Calcutta which has been doing valuable work in translating Buddhist texts from Pali Sanskrit into Hindi the Anjuman Taraqqi e Urdu which looks after the interests of the Urdu language the Ramkrishna Mission Institute of Culture which is rendering unique international service in the cultural sphere (building grants and also recurrent grants and lump grants for the publication of the Cultural Heritage of India and Great Women of India was paid to this Institute) the Bharatiya Vidya Bhavan of Bombay doing valuable work in literature history philosophy and for Indian cultural activities the Hindustani Cultural Society of Allahabad with its programme of cultural publications especially those promoting Hindu Muslim unity the Hindi Sahitya Sammelan of Allahabad devoted to the propagation and development of the Hindi language (it has been given Rs 5 lakhs for the construction of the Sammelan building in Allahabad) and the Hindustani Prachar Sabha of Wardha which has been working for the propagation of Hindustani as the common medium of intercourse throughout the country

AWARDS TO MUSICIANS, DANCERS AND ACTORS

From 1952 onwards a system of annual awards to eminent artists was instituted to give state recognition to their services to the cultural life of the country These awards were made mostly to senior men and women in recognition of the established reputation and past achievements of these artists The awards consisted of a woollen shawl, a gold bracelet a 'Sanad' and a cash prize of Rs 1000 to musicians and actors and a brocade shawl a gold necklace, a Sanad' and a cash prize of Rs 1000 to dancers In the first three years the awards were made only to eminent musicians of the Hindustani and Carnatic schools but from 1955 awards are also being made for dancing and acting in addition to music

THE NATIONAL MUSEUM AND GALLERY OF ART

The Asiatic Society of Bengal initiated a movement for establishing a National Museum in India Government accepted the suggestion and a scheme for a Central Museum of Art Archaeology and Anthropology was drawn up by the Director General of Archaeology in India in 1945 and, in the pre Independence days a committee with Sir Maurice Gwyer as its chairman was appointed to examine the project The detailed report of the committee which was published in 1946 was accepted by the Ministry of Education in 1947 and a site for the proposed National Museum was selected near the Junction of the Jan Path (Queensway) and Raj Path (Kingsway) in New Delhi The nucleus of the National Museum was formed out of the exhibits of the Exhibition of Indian Art and Archæology held in London in 1947 48 The entire collection displayed at the Exhibition was brought to Delhi and an Indian Art Exhibition was organized at the Rashtrapati Bhavan A favourable response was received from the owners of the art objects to the appeal of the Government for an extended loan of the articles and they are now being exhibited in the National Museum which was established and formally opened by the President on the Independence Day 1949 The present collection is drawn mainly from the museums under the control of the Department of Archaeology and it is being enriched by the new acquisitions of the Art Purchase Committee The collection as a whole presents a comprehensive picture of the art and culture of India through the ages and ranging from prehistoric times to the end of the 18th century

In the Museum several temporary exhibitions of objects mostly loaned from outside were held the first of these exhibitions being rare palmleaf manuscripts books on Indian Philosophy poetry rhetoric and drama Later exhibitions of Indonesian and Chinese art were also held The construction of its own building for the National Museum has already been taken in hand

Government of India ever since India became independent was contemplating to have a National Gallery of Art in India s Capital This took final shape when the National Gallery of Modern Arts was inaugurated at Jaipur House on 29th March 1954 It wisely decided to restrict the exhibits in this National Gallery to works of art belonging to the period after 1850 onwards The year 1850 may be considered a convenient point of time, for by then the old schools of art had lost their vitality and newer styles of painting inspired by contacts with the west began to come into being The work of collecting modern paintings first started when 30 paintaings of Amrita Sher Gill was purchased in 1948 49 The Gallery now has 96 paintings from this very gifted artist

Amrita Sher Gill daughter of an Indian father and a Hungarian mother died at the age of only 29 in 1941 she left behind her a collection most of which was painted in the last few years of her life Her art exhibits a surprisingly mature style and a manner of amazing originality showing a simplification of significant forms It has been claimed for her by competent critics that her works are comparable in quality to that of the greatest painters of this or any other age The National Gallery has also 13 well

chosen paintings of that other giant of modern paintings Jamini Ray His work based on true Bengali folk art in simple flat colours with bold black contour lines though thoroughly Indian in feeling are surprisingly modern Other paintings are from Rabindranath Tagore and many masterpieces of the Bengal school of revivalism from Abanindranath Tagore Nandalal Bose A R Chugtai (now in Pakistan) and also works of the what may be called the neo Gujarati painters though they are found all over India who draw their inspiration from the highly stylized book illuminations of the 15th century Gujarat There are also a number of paintings of the present day expressionists such as Sailoz Mukherjee and Avinash Chandra It has also been decided to transfer from the National Museum to the Gallery all works of art belonging to the period from 1950 onwards

To mark the inauguration of the Gallery an exhibition of contemporary Indian sculpture was organized by the Ministry of Education on the occasion and a parallel exhibition of photographs showing the growth of Indian Sculpture from the time of Mohenjodaro and Harappa to the end of the 18th century was also arranged to enable the visitors to compare the Indian sculptural exhibits with the monuments of the past It is hoped that the Gallery will soon have permanently some of the outstanding plastic works by Indian sculptors

CULTURAL RELATIONS WITH OTHER COUNTRIES

An exchange of cultural programmes to strengthen the cultural bonds between India and the other countries by cultural exchange programmes was actively encouraged In 1952 the first exhibition of Indian Art wa held in China and Japan and this proved to be so popular that the collection was sent also to Australia for display Another exhibition was sent on tour to important cities in the U S A and Canada in 1953 This exhibition was sponsored by the Ministry of Education and organised jointly by the Academy of Fine Arts Calcutta and the All India Association of Fine Arts Bombay In the same year the All India Fine Arts and Crafts Society New Delhi sent an exhibition to the Soviet Union in response to an invitation from the Soviet Academy of Arts This exhibition visited Moscow Kiev and Leningrad in the U S S R Warsaw and Cracow in Poland and also some cities in Germany The National Government also sponsored an exhibition organized by Shri Subho Tagore of Indian Arts through the Ages intended to give a representative picture of Indian Art consisting of masterpieces of sculpture from Nalanda a selection of paintings of Mughal and Rajput schools paintings of contemporary artists folk paintings and toys illustrated ancient manuscripts bronze works of South India metal works and wood carvings and old jewellery and other objects of art This exhibition is visiting the Middle East Europe and South America Government of India are also participating in an exhibition organised under the auspices of the Royal Asiatic Society London for which about 400 paintings have been collected to represent India

In 1954 55 delegations of Indian artists and University students and teachers visited the U S S R Another delegation participated in the World Fellowship of Buddhists lecturers were also sent to Trinidad and to British East Indies to teach Hindi to the Indian communities there while Dr Suniti Kumar Chatterjee well known for his work in linguistics and oriental studies now Chairman of the West Bengal Legislative Council was sent on a cultural tour to West Africa

Among the cultural delegations that came to visit India in 1954 55 were delegations from Afghanistan the U S S R and the People s Republic of China all of whom toured extensively in India and strengthened cultural ties between India and their respective countries The cultural delegation from Afghanistan had Dr Ali Ahmad Khan Popal Deputy Minister of Education as Leader and consisted of ome prominent figures in the fields of literature education science and journalism in that country They

stayed in India for over two months and visited a number of historic and cultural centres such as Agra, Allahabad Banaras, Calcutta, Madras, Bangalore and Bombay

A thirtyone member Soviet Cultural Delegation was led by Mr Bespalov Deputy Minister of Culture in Russia It stayed for a week in New Delhi, where it witnessed the Republic Day celebrations and gave performances of classical and folk dances and piano and violin recitals This delegation later visited Calcutta Madras Bangalore Hyderabad and Bombay during their six week stay in India

The Chinese Cultural Delegation with Mr Cheng Chen to Vice Minister for Cultural Affairs in China as leader and with 67 noted authors poets actors musicians and dancers as members arrived in New Delhi on 6th of December 1954 at the invitation of the National Government It stayed for about six weeks in India and visited several places including Agra Ajanta Bombay, Madras and Calcutta, which were very largely attended and greatly appreciated It was not merely that cultural delegations had been invited to visit India but India also sent delegations abroad to give the world outside some idea of the cultural life of India today In 1954 one such delegation led by Shrimati Chandrasekhar Deputy Minister of Health visited the USSR Poland and Czechoslovakia This was received with great enthusiasm and created in these countries a genuine interest in the music and dance of India

A cultural delegation consisting of 50 prominent Indian musicians and dancers also visited China in 1955 under the leadership of the Deputy Foreign Minister The delegation toured all over China and during their stay of two months received the most enthusiastic welcome from the people and undoubtedly helped in the forging of closer ties with the resurgent people of that ancient land

In 1951 a goodwill tour of the Middle East and Europe was undertaken by our Minister for Education who visited Turkey Iraq Egypt Pakistan, U K France and Switzerland A Cultural Agreement with Turkey was signed during this tour This agreement provides for the exchange of university teachers students members of scientific and cultural institutions and sport units It is proposed to award scholarships to Turkish students and arrange for the exchange of publications between the two countries The Indo Turkish agreement will remain in force for 10 years and can be renewed after the expiry of this period

In December 1949 Professor Humayun Kabir and Mr N K Sidhanta were deputed to advise Indian settlers in Nairobi regarding the setting up of educational institutions In 1952 Pandit Onkarnath Thakur the eminent singer was nominated by the Government of India to participate in the Jashan Day celebrations in Afghanistan His vocal recitals of Indian music were greatly appreciated in Afghanistan A number of Delegations to learned and cultural conferences have been sponsored by the National Government

Delegations and observers were sent by the Ministry of Education to the third fourth and fifth Congresses of the International Theatre Institute held at Paris Oslo and The Hague respectively India was represented at the International Political Science Congress at Zurich and the International Conference of Arts at Venice and at the International Conference on the Role and place of music in the education of young peoples and adults which was held in Brussels Delegates were also sent to the International Congress of Orientalists held at Istanbul and at Cambridge in 1951 and 1954 respectively Financial assistance was also given to those who attended the Inte national Conference of Linguists and the second Conference of World s Fellowship of Buddhists in Germany

Cultural societies in foreign countries which would help in interpreting culture of India to their countrymen and in forging friendly ties, have been given substantial grants Some of the organizations

are the Indo-Egyptian Cultural Association the Indo-Turkish Cultural Association the India League of Australia, the Imperial Institute of London the Ceylon Estate Workers Educational Trust the School of Oriental Studies London the Royal Asiatic Society London the Italo Indian Association in Rome and the Indian Hospices Jeruselam The Indo-Iranian Cultural Association has been converted into the Indian Council for Cultural Relations This Council is an autonomous and unofficial organisation whose function is to foster revive and strengthen the cultural relations between India and other countries but it is financially supported by the National Government

In order to spread knowledge about India among people of foreign lands the Government of India have been presenting books on Indian history art philosophy and other literature by eminent authors to Universities in other countries The libraries of Indian Missions abroad have been enlarged and mobile library vans have been provided in Mauritius and Trinidad

The Government of India and the U S A entered into an agreement for the exchange of official publications Under this agreement both the countries furnish regularly to each other a copy of every official publication except those that may be considered secret Another agreement was signed between the Government of India and the Cooperative for American Remittances to Everywhere (CARE) in 1950 Under this agreement gifts books food and urgently needed commodities from U S A are supplied to approved professional and educational institutions in India The Government of India have also been assisting several Asian and African countries by the recruitment of Indian teachers required for the Universities and educational institutions in those countries Requests for this assistance were received from Afghanistan Iraq Iran Malaya Uganda Tasmania Trinidad British Guiana Italy and Germany The subjects for which Indian teachers were asked for ranged from Sanskrit Hindi and English to Science Music History and Art

The Government of India and the U S A signed the Fulbright Agreement in 1950 It was proposed under the Agreement to set up a Trust Fund out of the sale proceeds of surplus American stores left in India after the Second World War A Body called the United States Educational Foundation was established to administer this Fund for purposes specified in the Fulbright Act This Board has 10 Directors five U S A citizens and five Indians This Foundation works in close cooperation with the Ministry of Education Government of India and provides Fellowships for Indian students in U S A and for American students in India Grants for purchase of books apparatus and other equipments are also given to educational institutions in India This programme has proved to be of great mutual advantage to both the countries and the signing of this Agreement is a veritable landmark in our cultural relations with foreign countries.

OTHER CULTURAL ACTIVITIES

The mighty range of the Himalayas cover over 1500 miles of India s northern boundary and play an important role in India s economy In India however interest in mountaineering was limited to only a very small number of people But the conquest of the Everest by Shri Tenzing Norgay immediately evoked great interest in mountaineering among young people all over the country Dr B C Roy the Chief Minister of West Bengal proposed that an Institute in Mountaineering should be established in the home town of the conqueror of the Everest to foster among the young people a sense of comradeship discipline and qualities of leadership while commemorating the achievement of that great mountaineer The Prime Minister himself a great lover of the mountains laid the foundation stone of the first Indian Institute of Mountaineering on 4th November 1954 on Birch Hill in Darjeeling and the Institute is being maintained as a great national institution

YOUTH FESTIVAL

In pursuance of the recommendations of the U N Seminar on Youth Welfare the Inter University h Festival the first of its kind in India was inaugurated in New Delhi by the Minister for Education ovember 1, 1954 Over 700 men and women students from twentysix Universities participated in the al the purpose of which was to inculcate in the student community, discipline unity and *joie de vivre* festival which lasted about a week enabled the young people from different parts of the country to meet another and familiarise themselves with the culture of different parts of India There were series of per ances including competitions in drama classical music dance, elocution and sports An exhibition rts and crafts was organised by the students participating in the festival Besides paintings a variety andicrafts such as painted pottery embroidery, leather work and sculpture were on view in the bition

The second Youth Festival was held last year in the Talkatora Gardens and was more largely nded and had a more extended programme

The Ministry of Education also selected delegates on the result of an essay writing competition and sonal interviews for participation in the New York Herald Tribune Forum and the New York Mirror Forum

REPUBLIC DAY CELEBRATIONS

The Republic Day celebrations in 1955 were an occasion for many cultural events After the rch past by the various units of the Armed Forces there was a cultural pageant which followed In pageant there were cultural tableaux from nearly every State The Madras tableau represented peace mission of Avvai the celebrated Tamil poetess who visited the courts of ancient Tamil d kings exhorting them to unite instead of wasting their energies in internal strife The West Bengal leau showed a famous historical scene in which Chand Saudagar a great merchant prince of 7th century D was seen loading his famous ship Madhukara and its fleet of smaller boats with the products of ngal for trading expedition to the coastal cities of India and Ceylon The tableau from Kashmir picted the handicrafts and the scenic beauty of the State In the carrier shaped like a Shikara set ainst a colourful background of mountains and forests sat Kashmiris Dogras and Ladakhis dressed in eir traditional costumes and singing to the accompaniment of folk instruments On either side of the at were seen craftsmen from Kashmir busy fashioning articles of great beauty

Industrial progress was the theme of Bombay s tableau which was complementary to other tableaux hich represented India s cottage industries

Pondicherry now part of India was represented by a boat symbolising fishing which is an import nt occupation of the people of Pondicherry and a lighthouse Girls variously dressed in Indian and Euro ean clothes and singing French songs in chorus represented the happy synthesis of French and Indian ultures that has been achieved in this place

FOLK DANCE FESTIVAL

As a prelude to the Folk Dance Festival at the National Stadium on January 27 and 28 a concert f folk music was held by All India Radio under its National Programme on January 26 1955 The rogramme of one and a half hours consisted of 13 items presented by troupes from Kashmir Himachal radesh Pepsu, Sikkim Manipur, Madras Madhya Pradesh and Saurashtra Troupes from N E F gency and Goa (representing Western India) also participated in the programme

On 27th January, a huge concourse of people watched the first performance of last year's Folk Dance Festival at the National Stadium in New Delhi The Ruf of Kashmir the Nat Puja of Assam the Lion Dance of Bombay the Banjara Dance of Madhya Bharat the Jadur of Orissa, the Thabal Chongba of Manipur the Athanga Nritya of Saurashtra the Shap Doh and the Chabrung of Sikkim the Thiruvathi *rakali of Travancore Cochin, the Ahir Dance of Bundelkhand and the Siddi Dance of African bodyguards* of Hyderabad were the most interesting items of the first day s performance The performance on the following day included some new features The Assamese troupe performed a dance of the Boro tribe and the aborigines of Vindhya Pradesh took the audience back to the strange life of the jungle The troupes from Bihar performed the Lugri and the Barela dances

INTERNATIONAL CHILDREN'S ARTS EXHIBITION

The International Children s Arts Exhibition which has been organised by the Shankar s Weekly *for some years now enabled the children of a large number of countries to exhibit their works In 1954* some 24 000 entries were received from children belonging to 56 countries Out of these about 2 500 were selected for exhibition and prizes were awarded to 200 of them 100 additional prizes were awarded for children s writings

Shankar s Weekly also arranged an international exhibition of dolls this year which created very great interest

Indian school children have also been participating in the exhibitions of children s paintings in Italy *Germany and the United Kingdom A selection of paintings by Indian children was also sent to Japan*

Children from 42 countries participated in the International Children s Postage Stamp Designing Competition held in Delhi in connection with the Postage Stamp Centenary Celebrations in October 1954 and as many as 4 000 entries were received 53 prizes were awarded and it is interesting to note that the Director General of Swiss Posts and Telegraphs presented a gold clock as one of the prizes

The National Government has been giving increasing attention to the cultural needs of children In the third Children s Film Festival organized by the Cultural Film Society of Delhi in December 1954 *as many as 31 children s films from* Czechoslavakia Hungary Germany the United Kingdom the U S S R and the U S A were exhibited The Union Minister for Revenue and Civil Expenditure announced in his inaugural address that Government would give grants to those engaged in the production of children s films varying from the entire cost of the first feature film to 50 per cent for the cost of the third feature film and two short films as commercial undertakings would find it difficult to produce children s films entirely on their own

Translation of Indian classics into European languages was an important project jointly under taken by the Government of India and UNESCO in 1953 Funds for this purpose have been provided *by the Government and the preliminaries* completed The Indian National Commission for UNESCO has already recommended a list of Indian classics for translation into English and French The work on the two classics is already in hand The Government of India also helped the UNESCO to bring out an album of Ajanta paintings the first publication in their World Art Series

UNESCO exhibitions on *Education and Peace Man against the Jungle Horizons of Science* Japanese Art Woodcuts and the Colour Reproductions of Paintings prior to 1860 are being taken to every part of the country UNESCO exhibitions on Travelling Reference Libraries and Reproductions of Chinese Paintings and Stone Engravings are also shortly expected in India

With a view to strengthening cultural contact between India and other countries the Government of India have recently instituted a scheme to award 30 scholarships every year to Indian nationals for specialisation in some of the major languages of Asia and Europe This scheme will also train Indian teachers employed at Universities where foreign languages are taught The languages for which scholarships are being awarded are Arabic Chinese French German Italian, Japanese, Persian Russian Spanish and Turkish

The Overseas Scholarship Scheme which was started in 1945 continued till 1947 48 The scheme has now been modified and enlarged to meet not only the future requirements of the Union and State Governments but also of the Universities, research and technological institutions and public utility concern

The Government of India offered fellowships to German students for the study of Indian languages, religion and philosophy as a reciprocal measure to the facilities offered by the Federal Republic of West Germany for the free practical training of Indian engineers and apprentices in German heavy industries and post graduate facilities to Indian students The Government of India have also granted fellowships to French scholars to reciprocate the generous gesture of the French Government in awarding scholarships to Indian students for study in France

The foregoing paragraphs attempt to describe in brief some of the cultural activities sponsored by the Central Government but no attempt has been made to refer to the valuable work that is being done by the numerous cultural and learned societies all over India or to the work of the departments of the State Governments Only a passing reference can be made here to the splendid documentaries and shorts produced under the auspices of the Ministry of Information and Broadcasting which have focussed public attention wherever they have been exhibited on the cultural life of the country The broadcasting organization has also been doing most valuable work in popularising through the radio classical Indian music both vocal and instrumental in attempting to familiarise the people in India with their cultural heritage in the regional languages of India and in Hindi In the days of the alien rule of the country little encouragement was given to the artists musicians and dancers or for fostering the national literature in the Indian languages After the disintegration of the Moghul Sultanate at Delhi such patronage as was given to the artists was by the local princes and big landowners But the whole attempt of the National Government has been to make the work of the artists musicians and dancers familiar to the common people and to bring an appreciation of Indian culture to every citizen of India without its being the special prerogative of a limited few belonging to the upper strata of society

It is hoped that this brief survey gives some idea of the valuable work for cultural development in India since Independence which is being so vigorously pursued by the National Government



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October—Ap il	Big game shooting
Last week of December—Febr ary	Ski g
Apr l—October	Golf d Tenn s

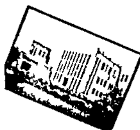
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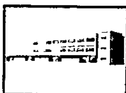


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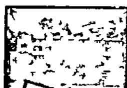


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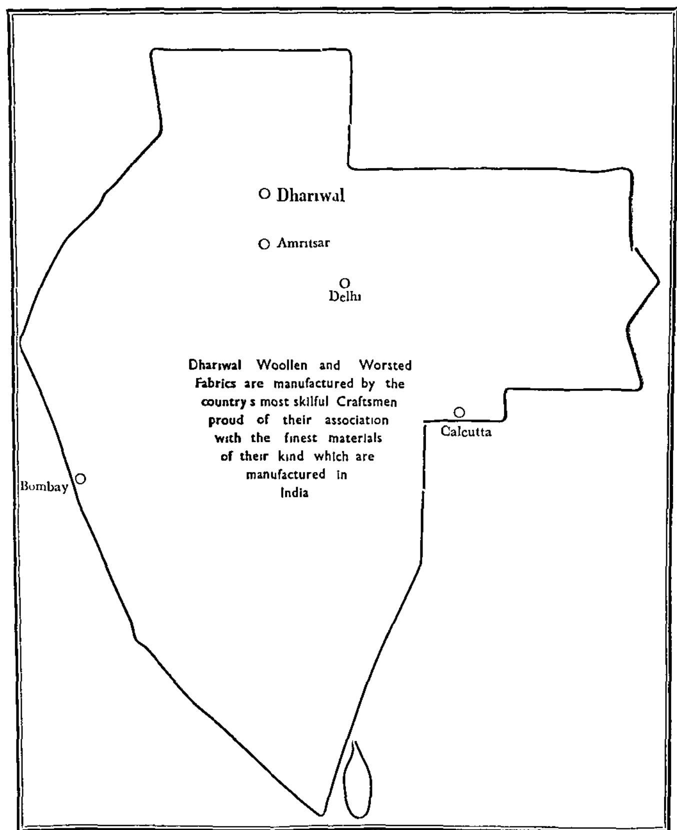
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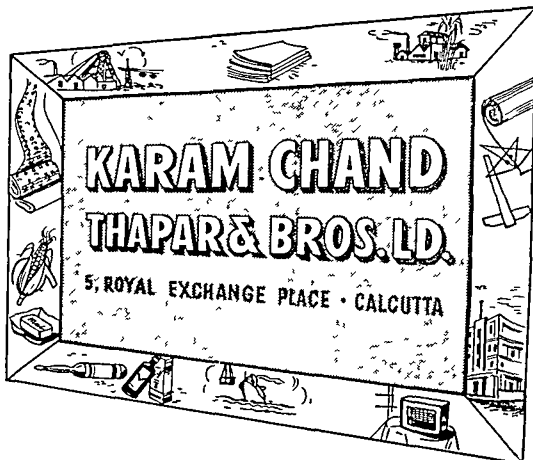
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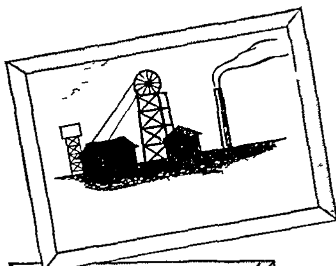


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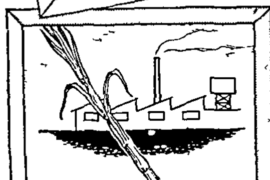
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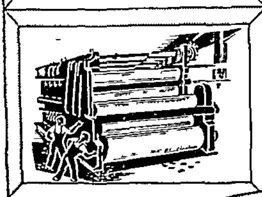
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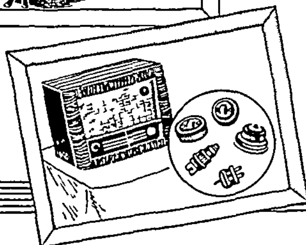
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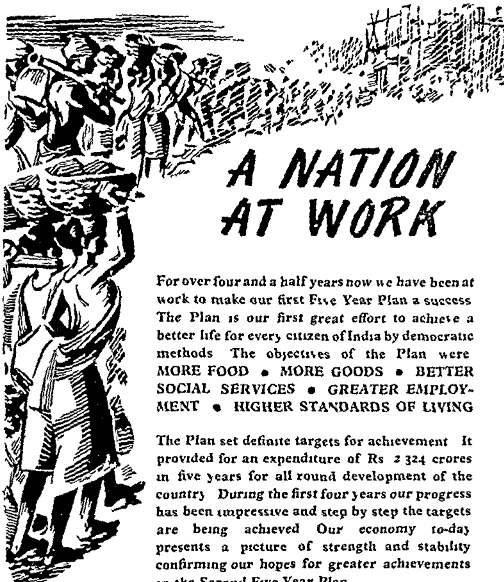


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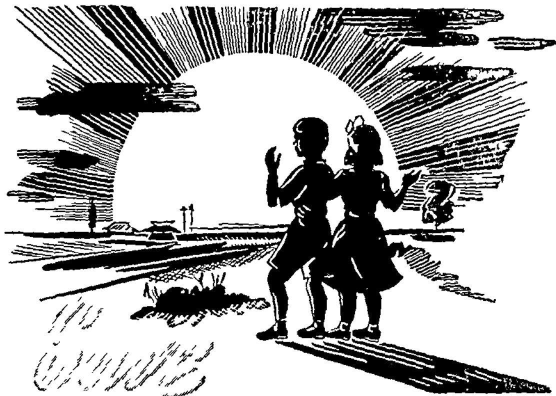
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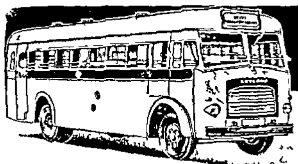
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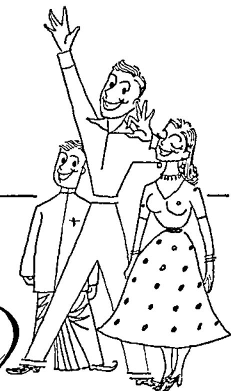
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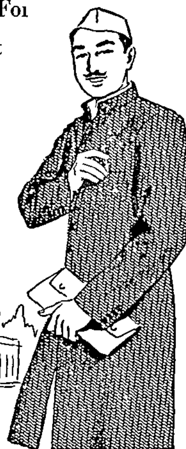
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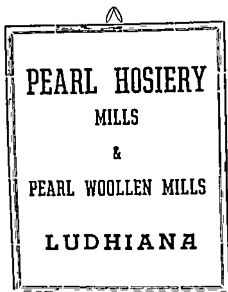


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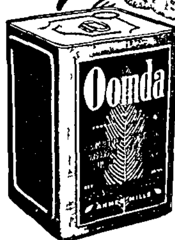
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was in fact encountered only twice during the 2 114 thyroidectomies General exhaustion following overstimulation of the thyroid may be a contributory factor

The *simple physiological goitre* in adolescents which appears at puberty with its euthyroid and sometimes minimal hypothyroid stigmata can easily be mistaken for this acquired hypothyroidism of adolescents It may follow relative insufficiency of iodine in the food during the stress period of puberty and show phases of relapse and remission Relief from the strain of physio logical adaptation as they get older results in a return to an efficient endocrine balance and spontaneous resolution

Post-operative hypothyroidism in adolescence is rare Relatively few operations are performed on the thyroids of patients below the age of twenty Further more one s natural instinct cavils at advising opera tions on adolescents partly for cosmetic reasons and partly in the knowledge that endocrine balance has not yet been adequately attained and that the stress and strain of active life still lie ahead Pressure symptoms are extremely few at this stage Toxicity severe enough to demand surgical intervention usually occurs only after the second decade In fact hypothyroidism in the adolescent child especially of the latent type appears far more frequently in the first decade than does hyper thyroidism It is all too frequently misdiagnosed as deficient mentality or physical underdevelopment It is withal so readily amenable to treatment



FIG 347
Adolescent Hypothyroidism
Cretin aged 23 years
(London Hospital)

(6) SPONTANEOUS ADULT HYPOTHYROIDISM

Adult hypothyroidism occurs after completion of the skeletal development If skeletal development is not yet complete it remains static until the hypothyroidism has been corrected Hypothyroidism in the adult (Fig 348) is less serious than in adolescence and far less serious than in the infant The hitherto normally developed thyroid undergoes spontaneous atrophy (Fig 349) It is of a primary nature and not secondary to a pituitary hypoplasia (Fig 351) The prognosis with treatment is good and the efficiency of adequate hormone substitution therapy remarkable (Figs 352 and 353) The relationship of primary and secondary hypothyroidism will be discussed later The characteristic light yellow colour of the skin in hypothyroid patients is due to an associated carotenaemia resulting from hepatic insufficiency The carotene or provitamin A is not converted



FIG 348
Adult Hypothyroidism
Woman aged 56 Shortness of breath loss of voice poor memory hair coming out in bunches Said to be suffering from Bright s disease On examination speaks slowly in hoarse voice pulse 70 creamy white skin with malar flush Photograph shows great puffiness of eye lids subcutaneous thickening excessive wrinkling of skin and coarse hair *(London Hospital)*

to vitamin A Thiouracil may produce the same effect by inhibiting the carotenase enzyme The therapeutic effect of thyroxine is seen in figures 352 356

Resistance to infection especially tuberculosis is diminished in this hypo thyroid state Generalised tuberculosis is rare in association with thyrotoxicosis

Skeletal development remains retarded unless replacement therapy is instituted (Fig 354)



FIG 349



FIG 350

FIG 349 **Atrophied Thyroid Gland (Early Stage)** The white fibrosed architecture of the hypoplastic gland is well seen in the section cut from the left lobe A severe degree of myxoedema was associated with this primary atrophy of the gland *(Middlesex Hospital)*

FIG 350 **Primary Atrophy of Thyroid (Late Stage)** Spontaneous atrophy of the thyroid gland in an adult with advanced myxoedema A pad of loose connective tissue conforming to the shape of the thyroid gland remains The epithelial tissue has disappeared completely *leaving only the collapsed connective tissue framework to maintain the outline of the gland (Westminster Hospital)*

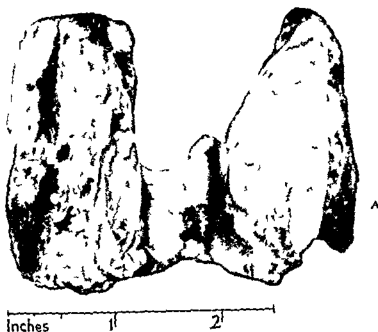




Fig 351
Fibrosis of Senescence
Macroscopy of atrophied gland with cystic degeneration and much fibrous tissue (*upper*) Microscopy of upper subject The epithelial elements show a generalised atrophy The acini are small and contain a minimal store of colloid The fibrous tissue is of a fine texture (*lower*)



Fig 349



Fig 350

Fig 349 **Atrophied Thyroid Gland (Early Stage)** The white fibrosed architecture of the hypoplastic gland is well seen in the section cut from the left lobe A severe degree of myxoedema was associated with this primary atrophy of the gland *(Middlesex Hospital)*

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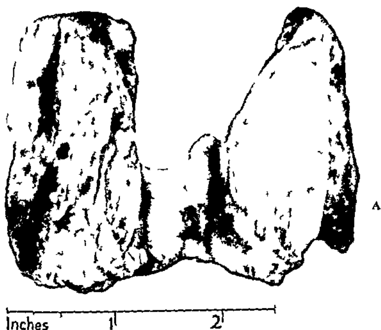




FIG 351

Fibrosis of Senescence

Macroscopy of atrophied gland with cystic degeneration and much fibrous tissue (*upper*) Microscopy of upper subject The epithelial elements show a generalised atrophy The acini are small and contain a minimal store of colloid The fibrous tissue is of a fine texture (*lower*)



Fig 352

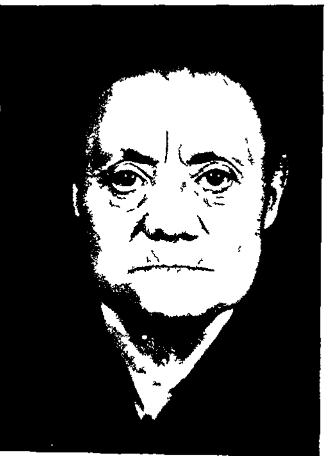


Fig 353

Adult Spontaneous Hypothyroidism showing Result of *Treatment with Thyroxine*

Fig 352 Before treatment with thyroxine

Fig 353 After treatment with thyroxine

(The Glaxo Volume)



FIG 354
Sternum in Adult Myxoedema
The epiphyseal lines remain unossified in spite of the advanced age of the patient *(Royal College of Surgeons of England.)*

Symptoms and signs of hypothyroidism may follow the steady growth of a chromophobe adenoma of the pituitary (Fig 358) due to the effect of pressure on the residual cells The microscopical appearance of such a chromophobe adenoma is shown in figure 359A A basophil adenoma is illustrated in figure 359B

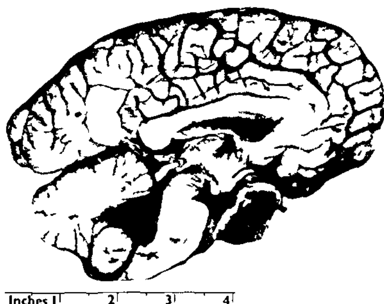


FIG 358

Chromophobe Adenoma of the Pituitary causing Atrophy of the Thyroid

Haemorrhage has occurred in the greatly enlarged adenoma of the pituitary The patient aged 49 years died from the typical features of hypopituitarism The resultant secondary atrophy of the thyroid gland is depicted in the preceding figure (Fig 357) (*Westminster Hospital*)

Acromegaly is usually associated with hyperplasia or neoplasia of the eosinophil cells (Fig 359 C and D)

Figures 359 A D available by courtesy of Dr W Blackwood illustrate the various differentiating histological features of such a primary causal factor resulting in secondary failure of the thyroid gland It has already been stressed that as the thyroidal epithelio lympho fibrosis phases advance the pathological changes remain in accord with the pre operative clinical features Thus 37 per cent of patients with diffuse lymphoid hyperplasia are only mildly toxic and 60 per cent of those with fibro lymphoid hyperplasia are similarly involved All the five patients

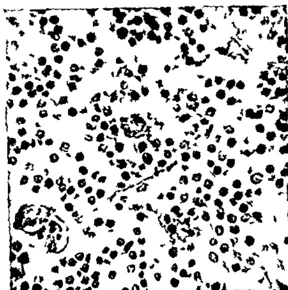


FIG 359A **Chromophobe Adenoma of the Pars Anterior of the Pituitary** *showing* the preservation of the normal vascular pattern with solid alveolar masses of chromophobe cells showing regular nuclei no mitotic figures and only a little faintly staining cytoplasm (The tumour cells are less closely packed than normal in this biopsy specimen) (Pyrrol blue Eosin × 300)

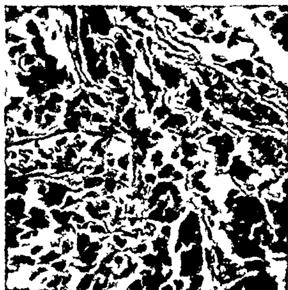


FIG 359B **Basophil Adenoma of the Pars Anterior of the Pituitary** from a case without Cushing's syndrome showing the thin walled capillaries and the solid alveolar pattern of the tumour cells of similar type with basophilic cytoplasm (Pyrrol blue Eosin × 300)

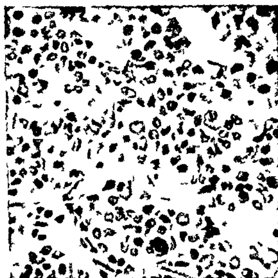


FIG 359C **Pre eosinophil Adenoma of the Pars Anterior of the Pituitary** *from* a case of acromegaly showing (1) the thin walled capillaries (2) the loss of normal alveolar pattern and (3) the tumour cells some with large nuclei some binucleated mostly with much pale staining cytoplasm some with a dusting of eosinophilic granules at the periphery of the cells and a few with many eosinophilic granules (Pyrrol blue Eosin × 300)

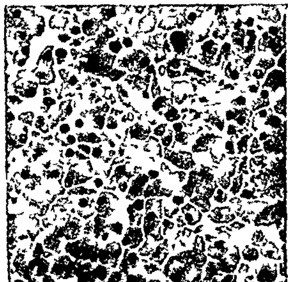


FIG 359D **Eosinophil Adenoma of the Pars Anterior of the Pituitary** from a case of acromegaly showing the tumour cells with their cytoplasm packed with eosinophilic granules (Pyrrol blue Eosin × 300)

(Blackwood Dodds Somerville Atlas of Neuropathology)

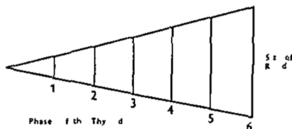
with fibrosis are only mildly toxic Accepting this pre operative state it follows therefore that the removal of a large amount of thyroid tissue containing still active epithelial cells results in the 27 per cent 67 per cent and 80 per cent incidence of post operative hypothyroidism found in these three terminal phases of the thyroid gland

The Residue after Thyroidectomy

It is by no means a mere axiom that it is far more important to leave an adequate amount of thyroid than to remove too much active tissue As the phases advance and undergo degeneration a greater amount of residue should be retained Riedel in his original contribution in 1896 advised only wedge excision of the isthmus in order to relieve the obvious tracheal pressure The lateral lobes were retained in his patients owing to the multiple strong adhesions tying the gland to the neurovascular carotid sheath (Fig 495)

In modern times a relatively similar procedure would be advised owing to the imminent danger of post operative hypothyroidism In the phase of fibro lymphoid hyperplasia where the extra capsular adhesions are more tenuous there always is the possibility of removing too much involved thyroid tissue owing to the facility with which the lobes can be dislocated and brought forward This tendency is more obvious in diffuse lymphoid hyperplasia where however a smaller residue suffices than in the two terminal phases

The optimal amount of residue to be retained in the various phases can best be appreciated from the rough guide shown below and also in figures 497 502



These considerations guide the surgeon s action All possible compression should be relieved special attention being paid to retro tracheal and retro oesopha geal extensions which may en circle the tracheo oesophageal tubes like an annular constriction ring Retrosternal prolongations resulting in pressure signs should be removed An adequacy of thyroid gland approximating most closely to the normal should be selected for retention in the residue in order to minimise post operative hypo thyroidism

In this instance treatment tends to be just the reverse of that in the toxic epithelial hyperplasia extreme of the thyroid spectrum where the purpose is to remove the maximal amount of hyperplastic tissue and yet to leave an adequate residue to ensure against the rare post operative hypothyroidism Nature provi dentially assists as the uncomplicated toxic epithelial hyperplastic thyroid can be dislocated quite easily Excessive preliminary thiouracil medication makes the toxic gland unduly friable and vascular and is simultaneously conducive to

the formation of exceptionally dense extra capsular adhesions rendering thyroidectomy more difficult Previous detoxication by thiouracil has already enlarged the gland In some instances the resultant thiouracil goitre in spite of subsequent iodine therapy before operation retains its greatly enlarged compass The injudicious removal of too much thyroid tissue is easily effected in what may originally have been a very toxic gland The resultant post-operative hypo thyroidism may need careful regulation by thyroid substitution therapy Regenera tive epithelial hyperplasia of the residual stumo will often eventually produce a euthyroid state

The temerity of the surgeon who performs too radical a thyroidectomy thus increases the rate of post operative hypothyroidism There are the added risks of injury to the recurrent laryngeal nerves and parathyroid insufficiency On the other hand undue conservatism by effecting a far less extensive removal of thyroid tissue invites the possibility of recurrence Bowers (1939) in a series of 60 thyroidectomies found one instance of recurrence and four of myxoedema In a second series of 43 thyroidectomies performed by another surgeon there were four instances of recurrence and one of myxoedema

The Blood Supply to the Gland

The liability to haemorrhage diminishes steadily from the highly vascular phase of epithelial hyperplasia to avascular fibrosis With added impetus of age the vessels show a sudden increase in their occluding mechanisms at the phase of fibro lymphoid hyperplasia This is associated with an increasing endarteritis obliterans which becomes more generalised in the stage of fibrosis The consequent ischaemia is greatly increased in the terminal phases of the thyroid

The need for ligation of the pedicles is minimised in the later phases (Figs 496 502) Furthermore in order to retain an adequacy of tissue to combat imminent post operative hypothyroidism of fibro lymphoid hyperplasia the superior pole with its blood supply may be retained on one or both sides providing it is not effecting pressure by retro tracheal extension Similarly there is less need for ligation of the inferior thyroid artery which is a *sine qua non* in the toxic epithelial hyperplasia phase where recurrence is most frequent and post operative hypothyroidism rare (Figs 496 502)

In the stage of fibrosis where multiple adhesions tie the gland to the carotid sheath the added danger to these vessels the vagus and recurrent laryngeal nerves becomes an important factor Wedge excision of the isthmus as shown by Riedel in his original contribution suffices in a gland which may afterwards retrogress spontaneously The added effect of hypothyroidism is thus minimised When it does appear it will not attain the severe degree which a needlessly difficult and dangerous radical thyroidectomy would entail

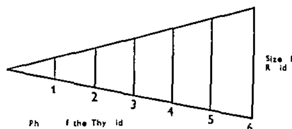
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ENDOCRINE INTEGRATION IN HYPOTHYROIDISM

THE FOUR FACTORS

The loss of thyroid function may occur in one or more of the following ways (*see also* figure 125) —

1 *Primary Pituitary Failure* It leads to hypotropism or diminished formation of its tropic hormone thyrotropin resulting in secondary thyroid failure

2 *Primary Thyroid Failure* This induces a diminished secretion of thyroid hormone

3 *Target Endocrine Gland Dyscrasias* As of the adrenals and gonads they cause secondary thyroid failure The dyscrasia may be intrinsic or secondary to pituitary disease

4 *Peripheral End Organ or Tissue Insensitivity* End organs or tissues may diminish in sensitivity to the target effector hormones of the thyroid gland

Primary Pituitary Failure

Destruction degeneration or atrophy is seen in Simmonds disease or its variant Sheehan s disease following post partum haemorrhage The target epithelial cells lacking stimulation atrophy and later deteriorate Secondary thyroid failure is associated with minimal aggregations of lymphoid cells (Fig 371) and possibly with fibrosis

Primary Thyroid Failure

This important cause of hypothyroidism has been extensively discussed in the preceding pages

Target Endocrine Gland Dyscrasias

The classical features of primary hypothyroidism hypogonadism and Addison s disease are well known as are those of hypoparathyroidism and pancreatic islet insufficiency But the combination of these in various degrees following a partial loss of pituitary function challenges all available clinical skill As will be seen misguided efforts in treating a secondary hypothyroidism in the presence of an associated hypoadrenalism may terminate fatally in an acute Addisonian crisis Similarly the association of impending heart failure with adrenal failure in secondary thyroid hypothyroidism presents particularly difficult and important problems (Fig 360)

Peripheral End Organ of Tissue Insensitivity

Deterioration of tissues themselves or possible change in their enzyme systems may be a causal factor of hypothyroidism or some of its manifestations

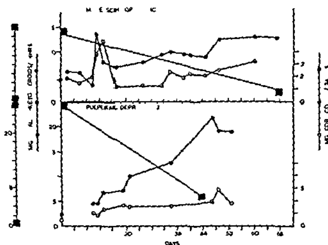


FIG 360A
Spontaneous changes in the 17 ketosteroid excretion rate the corticosteroid excretion rate and the thyroid activity during spontaneous improvement of two mental patients

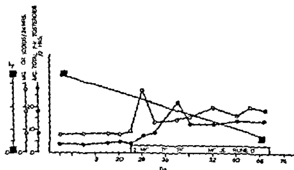


FIG 360B
Changes in the 17 ketosteroid/24 hr excretion rate corticoid/24 hr excretion rate and thyroid activity in a depressed patient who recovered after testosterone and oestrone treatment

(*M Reiss The Suprarenal Cortex Colston Research Society and Butterworths Scientific Publications*)

Sudden Ablation of Active Glands

The surgical removal of an overactive thyroid gland or its radiotherapeutic and chemical neutralisation may occasionally be fraught with serious complications Its suppressive effect is summarily removed producing a relatively great excess in the blood of thyrotropin which is being excreted in the urine The sudden replacement of a thyroxine tide by a thyrotropin tide results in an acute generalised thyrotropin dominance associated with varying degrees of the true or progressive exophthalmos In similar manner the surgical or radio therapeutic menopause artificially induced following ablation of the ovaries in a panhysterectomy or radiotherapy to the ovaries for endometriosis or metrorrhagia results in a sudden relative excess of gonadotropin or pituitary principle which may overflow to the other target organs Myxoedema is reputed by Conklin (1935) to be found more commonly following artificial menopause than after the spon taneous form

The relatively sudden atrophy and degeneration of the thyroid gland to the phase of fibro lymphoid goitre following the menopause and its relative thyrotropic excess has already been described (page 230)

THYRO ADRENAL RELATIONS

Embryological

The relation of the adrenal cortex to the gonads embryologically and phylo genetically is a very close one The adrenal medulla in contradistinction is part of the sympathetic nervous system

Experimental Results

Adrenal insufficiency produces enlargement and regeneration of the lymph nodes and of the thymus which have already atrophied following thyroidectomy Adrenal cortical extracts on the contrary induce decrease in size of thymus and lymph nodes as shown by Dougherty and White (1944) Hoskins (1910) has demonstrated further that the giving of desiccated thyroid to young guinea pigs produces adrenal cortical hyperplasia but that this does not occur in the hypo physectomised animal An indirect inter relationship between the thyroid and the adrenal cortex through the mediation of the hypophysis must also be envisaged

Adrenal Sensitisation

As long ago as 1916 Cannon and Cattell postulated that thyroid secretion also sensitised the sympathetic nervous system to adrenalin this increased sensitivity of thyrotoxic patients being the basis of the Goetsch test Adrenalin injection exaggerated the clinical picture of hyperthyroidism

Furthermore Maddock and his co workers (1936) claimed that the quantity of adrenalin in the blood is in direct relationship to the severity of the hyperthyroid reaction being minimal in the hypothyroid state

Crile (1938) suggested an interplay not only between the thyroid and adrenals but also between them and the nervous system He noted beneficial results of spinal anaesthesia in thyroid crisis a feature which was not supported subsequently by the work of Bartels *et al* (1940)

Goetz and Ritzmann (1934) inferred that the thyroid crisis which used to complicate the patient inadequately detoxicated previous to thyroidectomy was due to hyperactivity of the adrenal resulting in sudden excessive secretion of adrenalin In hypothyroidism there would be a diminished sensitivity to adrenalin accounting for the minimal response to stress

It is of interest too that the degree of intensity of thyroid activity partly determines the resultant size of the adrenals Maqsood (1950) has shown that there is a narrow range of thyroid dosage which has no visible effect on the adrenals This range was comparable with the animal s own thyroid secretion rate Larger doses of thyroid had a depressant effect on the adrenal cortex probably the result of overstimulation followed by exhaustion and atrophy

Effects of Thiouracil

The adrenals of hypothyroid rabbits previously treated with prolonged doses of thyroprotein and thiouracil were examined microscopically It was found that the early hyperplastic and later atrophic changes were confined solely to the adrenal cortex The adrenal medulla remained unaffected

Hypothyroidism produced by thiouracil administration or exposure to high temperatures was shown by Maqsood and Reineke (1950) to depress the development of testes and seminal vesicles of mice when adjudged by the macroscopical size and histological changes Conversely mild hyperthyroidism produced stimulation of the sex organs

Effects of Ablation and Substitution Therapy

In discussing the inter relationship between the thyroid and adrenal cortex Bartels *et al* (1940) compare them in the following manner —

THYROID GLAND

1 *Function* Cell metabolism is regulated

2 *Thyroidectomy results*
  - (i) Basal metabolism is reduced
  - (ii) Myxoedema occurs which is compatible with life
  - (iii) No obvious change in adrenal cortex It is enlarged occasionally
  - (iv) Survival period of adrenalectomised animals is increased

3 *Thyroxine administration*
  - (i) B M R is elevated in absence of adrenal (early)
  - (ii) Survival period of adrenalectomised animals is reduced

ADRENAL CORTEX

Salt and water balance is regulated
Androgenic effect is noted

Adrenalectomy results
  - (i) Basal metabolism is reduced (fall in temperature)
  - (ii) It is incompatible with life
  - (iii) No obvious change in thyroid gland

Cortical hormone administration
  - (i) B M R not influenced in normal animals
  - (ii) Adrenal function is simulated (after adrenalectomy) even in absence of thyroid
  - (iii) In excess
    - (*a*) Blood sodium is retained
    - (*b*) Urinary potassium is increased

THE RÔLE OF THE ADRENALS IN HYPERPLASIA AND HYPOPLASIA OF THE THYROID

Experimental Features

Total ablation of the adrenals, as shown by Bastenie (1937) in guinea pigs produces effects simulating those of thyrotropic hormone excess Cellular degeneration of the thyroid epithelium is accompanied by focal and diffuse lymphocytic infiltration This occurs even with a relatively short survival period

Removal of the adrenals in rabbits by operation or freezing as shown by Marine and Baumann (1921) produces hypertrophy of the thyroid with associated clinical hyperthyroidism Adrenalectomy followed by thyroidectomy fails to produce hyperthyroidism *X ray therapy applied to the adrenals* of man either as a therapeutic measure or in treatment of osteo arthritis of adjacent vertebrae has been shown by Jarvinen (1948) to produce severe even if temporary hyper thyroidism accompanied in some instances by a gross thyroid hypertrophy This hyperthyroidism occurred at an average age of 54 years when the onset of thyro toxicosis is relatively rare It involved patients with a hypothyroid habitus and moreover varied with the dosage of irradiation of the adrenals These results in man support those seen in animal experiments The adrenal cortex is closely related to the thyroid gland and atrophy of the adrenal cortex may initiate or maintain a state of clinical hyperthyroidism

Relationship of Cushing's Syndrome to Hypothyroidism

It has become generally accepted that Cushing s syndrome is due chiefly to a diffuse hyperplasia of the adrenal gland In 1933 Cushing noted an accompanying hypothyroid state which was associated with an atrophied thyroid The presence of a high serum cholesterol value and a low basal metabolic rate add weight to this association

Treatment by A C T H or cortisone results in subsequent thyroid depression When A C T H or cortisone is given to hyperthyroid patients variable results occur This may be due to the fact that a critical level of cortisone is required to produce a corresponding change in the thyroid function Thus 100 mg per day is effective while half that dose proves to be ineffective Furthermore treatment must be continuous

It could easily be suggested therefore that while Cushing s disease is a hyperadrenal hypothyroid state thyrotoxicosis may be a hyperthyroid hypoadrenal condition

Exogenous Adrenocortical Depression of Thyroid

The depression in the metabolic rate does not appear to be in proportion to the diminution of the size of the thyroid Berson and Yalow (1952) and also Kuhl and Ziff (1952) note that the I^{131} accumulation gradient and the serum protein bound iodine level fell in at least half of the normal patients treated with A C T H The basal metabolic rate showed a diminution at a late stage of treat ment when the fall in the radioiodine and P B I levels had become marked It appears that the depression of the thyroid produced by the adrenal cortex is not

a direct peripheral effect but indirect through inhibition of the thyrotropic hormone formed by the pituitary

Corticogenic hypothyroidism was described in 1951 by Wolfson and his co workers The hypothyroid stigmata and biochemical findings in man were similar to those following A C T H and cortisone administration A close resemblance was also obtained with those found after prolonged salicylate therapy The relative depression of the pituitary induced by cortisone has important features which have already been discussed especially in the control of thyrotropin excess (page 280)

Endogenous Adrenocortical Depression of the Thyroid

Three lines of investigation serve to accentuate this aspect of the thyro adrenal relationship —

1 *Clinical* The obvious depression of thyroid activity noted in Cushing s disease emphasises this mutual effect
2 *Physiological* The alarm reaction has been shown by Selye (1946) to be conducive to atrophy of the thyroid
3 *Experimental* Intramuscular injection of formalin in rats produces an alarm response shown by Paschkis (1950) which is capable of inhibiting I^{131} uptake of the thyroid appreciably

Relationship to Addison's Disease

The importance of this correlation becomes obvious when it is realised that intensive or prolonged hyperthyroidism is occasionally accompanied by the clinical stigmata of adrenocortical failure as shown by an appreciable number of cases of mild forms of Addison s disease in this series of 2 114 patients

Pigmentation (Fig 361) with other features of adrenal failure was seen in such a patient to react very favourably to thyroidectomy for thyrotoxicosis Myasthenia general lassitude and loss in weight improved appreciably after the operation Even the capital hair showed an obvious improvement (Fig 361)

Thyrotoxicosis can it appears produce symptoms and signs of adrenal failure which would be ameliorated by thyroidectomy There is adequate experimental proof that primary failure of the adrenals can initiate and maintain a state of hyperthyroidism Is this then effected by a direct mechanism or is it mediated through the hypothalamus and pituitary? (Fig 125)

With the systematic deterioration initiated by the pathological process of panhypopituitarism the thyroid and gonads show the earliest and maximal deterioration this is then followed at a later stage and with diminished intensity by the degeneration of the adrenal cortex

Primary myxoedema due to thyroid hypoplasia may according to Statland and Lerman (1950) induce myxoedematous changes in the pituitary itself and hence indirectly involve and produce diminished adrenocortical function Thus primary pituitary atrophy with secondary thyroid failure and secondary adreno cortical insufficiency must according to them be differentiated from primary thyroid myxoedema with its secondary pituitary and consequent indirect secondary adrenocortical failure (page 390)

TESTS FOR ENDOCRINE FUNCTION IN HYPOTHYROIDISM

The pituitary is responsible for its anterior and posterior lobe hormones The glandular anterior lobe through the eosinophil cells produces both the growth and carbohydrate metabolism hormones Its basophil cells yield the thyrotropin adrenocorticotropin the gonadotropin both follicle stimulating and interstitial cell



FIG 361A

Pigmentary Changes in Thyrotoxicosis

Thyroidectomy for patient showing combined features of hyper thyroidism and early Addison s disease one week after operation The pigmentation of the operation scar hands fingers and neck is obvious *(New End Hospital)*

stimulating hormones as well as prolactin The neural posterior lobe produces the anti-diuretic vasopressin as well as oxytocin

The thyroid function is exercised by thyroxine Adrenocortical cells liberate hormones including cortisone being partly responsible for mineral metabolism of sodium and potassium and for carbohydrate metabolism Corticosterone hydro

cortisone and androgens are likewise liberated The gonads form androgen oestrogen and progesterone

In an examination of thyroid function it is important to recall that thyroid disorders are intimately related to the functional state of the other endocrine glands In difficult cases it is desirable to investigate endocrine function in general



FIG 361B

Loss of Pigment following Thyroidectomy

One year after operation Pigmentation in the operation scar the neck and in the hands and fingers has practically disappeared The accompanying symptoms and signs of adrenal insufficiency have also disappeared *(New End Hospital)*

The reliability of specific tests for endocrine function is continually undergoing re assessment Concepts change as more dependable evidence accrues The following is a brief summary of some of the tests in general use

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produced the myxoedematous effect of the thyroid on the adrenal gland by direct as well as indirect action mediated through the pituitary Reversal of this hypothyroid state could be obtained by adequate thyroid substitution therapy If chronic in duration it became irreversible however failing to react favourably to intensive thyroid therapy (Fig 360)

Primary hypothyroidism due to intrinsic atrophy of the thyroid shows no increase of thyroid function after the administration of thyrotropic hormone The thyroxine tide cannot be increased In contrast *secondary hypothyroidism* following primary pituitary failure usually shows a favourable if only temporary response to thyrotropic hormone as also indicated by radioiodine tests (page 491) Primary hypothyroidism reacts well to thyroid hormone therapy but not to thyrotropin

ADRENAL FAILURE

The adrenal manufactures the sex N androgen hormone and the electrolytic Na K hormone in addition to S corticosteroid hormones

The *sex N androgens* measured by the 17 ketosteroids are less in a myxoedematous patient the fall being greater in the menopausal than in the pre menopausal female or the less chronic case In myxoedematous patients of long standing chronicity even intensive thyroid therapy fails to restore the 17 ketosteroid excretion to normal

The *adrenal electrolyte or Na K hormone* function was found to be normal in myxoedema the serum chloride and potassium being unaltered These results may be vitiated by renal dysfunction

The *adrenal corticosteroids or S hormone* that is the 11 oxycortico steroids were depressed in all myxoedematous patients The eosinophil counts following adrenalin injection were higher than normal showing loss of integrity of the pituitary or adrenal

Adrenal insufficiency may follow both long standing severe primary myx oedema and secondary myxoedema resulting from Simmonds panhypopituitarism These are often difficult to differentiate as primary pituitary and primary adrenal failure may occasionally co exist The special tests enumerated particularly re testing after adequate thyroid therapy help to establish the diagnosis

The association of *Addison s disease* with fibro lymphoid hyperplasia of the thyroid has already been stressed The hypothyroidism is then in an advanced stage Shaw and Smith in 1925 described Riedel s disease in association with Addison s disease A case similar to this occurs in this series of 2 114 patients

OVARIAN FAILURE

Pituitary gonadotropins were found to be diminished in myxoedema showing metabolic depression of the pituitary Thyroid substitution therapy resulted in an increase of the follicle stimulating *hormone in the pituitary the function of* which had obviously improved In contrast gonadotropins and follicle stimulating hormone may also be increased in young women with subsequent reversal on thyroid therapy

Thyroid Function

Thyroid function is best assessed by —

(1) Clinical phenomena (2) B M R (3) Radioactive iodine (4) Protein bound iodine (5) Serum cholesterol

Adrenal Cortical Function

Adrenal cortical function is estimated by —

(1) Clinical features (2) 17 ketosteroids (in males a measure of both adrenal and gonadal functions in females a measure of adrenal function alone) (3) 11 oxy corticosteroids in urine (4) Epinephrin test The eosinopenic response shows integrity of the adrenal cortex (5) Blood electrolytes for sodium as well as potassium (6) Water diuresis test (Kepler) (7) Salt depletion test (Cutler Wilder) (8) A C T H administration if 17 ketosteroids level rises it indicates that adrenal function is present though this may be minimal (9) Urinary chromatograms are useful

Ovarian Function

Ovarian function is assessed by —

(1) Clinical history especially of menopause with or without preceding irregularities (2) Oestrogens and pregnandiol (progesterone) in urine (3) Gonado tropins in urine (pituitary or chorionic) (4) Endometrial biopsies

Testicular Function

Testicular function is evaluated by —

(1) Clinical history including loss of libido of body pubic axillary hair or loss of genital function (2) Androgens (3) 17 ketosteroids are also absent or diminished in both sexes in Simmonds panhypopituitarism this occurs in women alone in adrenocortical insufficiency of Addison s disease as men have additional testicular production of ketosteroids They are low in myxoedema whether spontaneous or following thyroidectomy

Pituitary Function

Pituitary function is adequately tested by —

(1) Clinical features including amenorrhoea unaccompanied by menopause noting post partum haemorrhage (2) Insulin tolerance test (3) Follicle stimulating hormone or prolan A in urine absent in pituitary failure but excessive in ovarian failure (4) Epinephrin eosinophil response to show integrity of the pituitary (5) X ray of skull to exclude tumours of the pituitary (6) Water diuresis test (Kepler) failure in lack of pituitary function (7) 17 ketosteroids output is then also absent or minimal

THYROID FAILURE

The work of Statland and Lerman emphasised that hypothyroidism due to thyroxine lack resulting from a failure of thyroid function caused a compensatory *thyrotropic hormone* increase initially by hyperplasia of pituitary cells This is illustrated in figure 381 Later the pituitary became involved in the generalised myxoedematous change Pituitary depression resulted in a diminished adreno *corticotropic stimulus* with secondarily depressed adrenal function There was

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Fig 363

The Body Habitus of a Patient with Secondary Thyroid Adrenal and Gonadal Failure following Primary Pituitary Failure

The atrophic wrinkled dry and non perspiring skin associated with the flabby breasts is very obvious Absent pubic and axillary hair is however associated with increased pigmentation of the areolae as well as of the operation scar

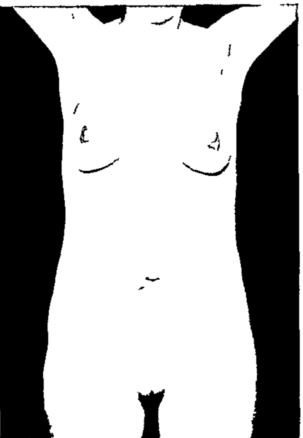


Fig 365

Improvement after Three Months Substitution Therapy for the Secondary Endocrine Failure

The sites for the D O C A implants are obvious Pigmentation has already started to diminish



Fig 362

Secondary Thyroid Adrenal and Gonadal Failure

Panhypopituitarism of Simmonds (Sheehan) disease following a serious ante partum haemorrhage in a patient who was previously normal *(St James's Hospital)*



Fig 364

Improvement after Three *Months Substitution* Therapy for the Secondary Endocrine Failure

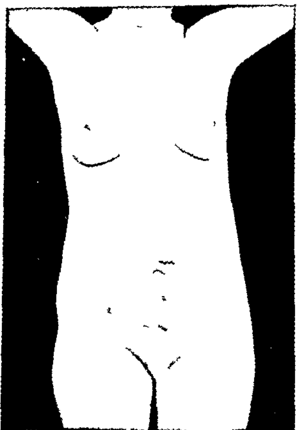


FIG 367

Improvement after a Further Nine Months Substitution Therapy

The B M R has been raised to near normal The flabby tissues as well as the breasts have regained their pristine firmness The marble like skin pallor has approached near the normal *pari passu* with the diminished pigmentation of the nipples and operation scars Pubic hair is becoming apparent and adopting the female escutcheon distribution

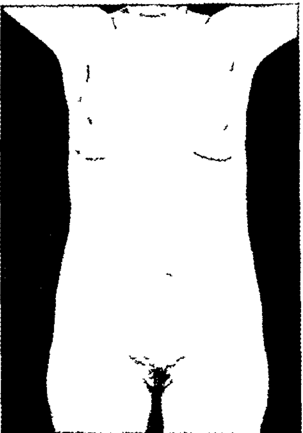


FIG 369

Maintained Improvement after a Further Three Months Substitution Therapy

The habitus has returned to a relatively normal state Pigmentation has diminished still further while axillary and pubic hair has increased A vertical spiral non pigmented linea has become very obvious above her right anterior superior iliac spine

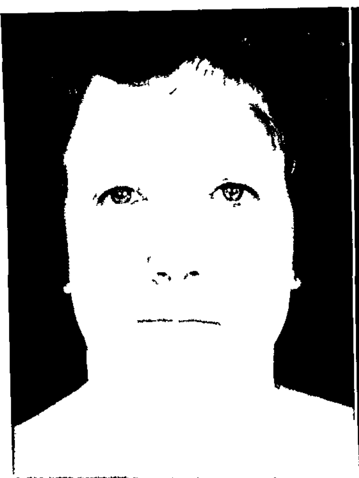


Fig 366
Maintained Improvement after a Further Nine Months Therapy
The thyroid hypoplasia has diminished. Supraciliary hairs have appeared while the capital hair has become finer and more lustrous. The face has also become fuller

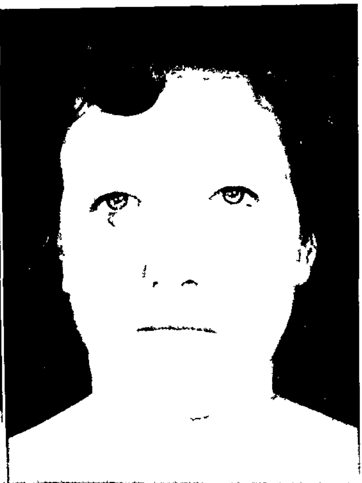


Fig 368
Return to Normality after a Further Three Months Substitution Therapy
The mentality has returned to normal. The face as well as the thyroid compartment is now full. Hair has now appeared in the outer third of the supraciliary margin as well as a faint downy increase on the cheeks

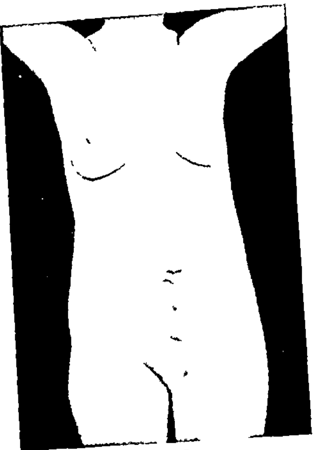


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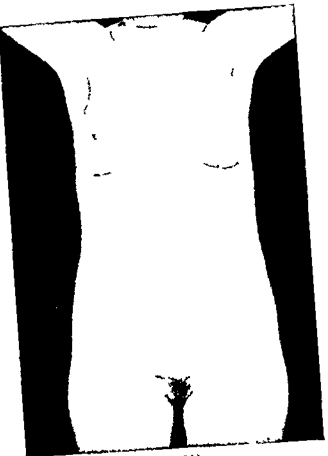


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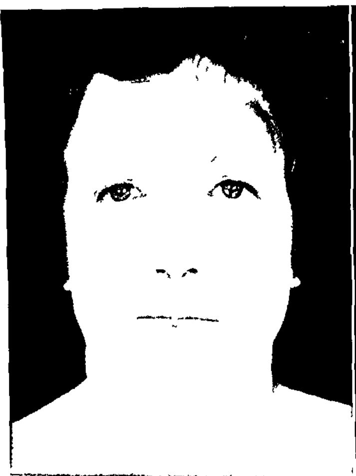


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The *mentality has returned to normal* The face as well as the thyroid compartment is now full Hair has now appeared in the outer third of the supraciliary margin as well as a faint downy increase on the cheeks

The pathological changes in Simmonds disease are illustrated in an interesting section prepared by Dr A Morgan of Westminster Hospital The normal endocrine glands are shown on the left and their counterparts as found at autopsy in Simmonds panhypopituitarism on the right Arranged in vertical series are the

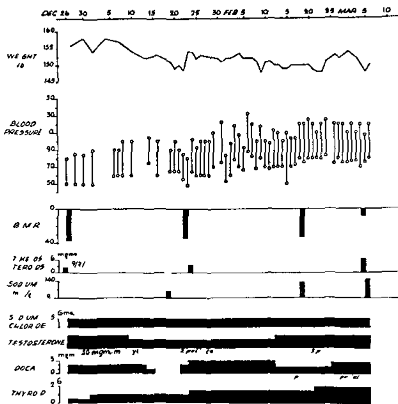


Fig 370
Response shown by a Patient with Simmonds Disease to Therapy with Thyroid Testosterone Desoxycorticosterone and Sodium Chloride
(*Williams Textbook of Endocrinology*)

pituitary glands above the thyroid in the middle position and suprarenals below The atrophy of the organs in Simmonds disease is very obvious Furthermore the lymphoid degeneration seen in the thyroid as focal lymphoid hyperplasia supports the evidence already discussed of degeneration in these organs (Fig 371)

PITUITARY FAILURE

A CLINICO PATHOLOGICAL STUDY OF POLYGLANDULAR THYROID ANOMALIES

A study of patients showing the varied manifestations of thyroid adrenal as well as pituitary failure has illustrated the importance of viewing the patient as a whole instead of being hypnotised by one if outstanding feature of the presenting condition

Figures 362 to 369 illustrate the changes in an active patient of 29 years previously normal who sustained an ante partum haemorrhage for which a Caesarean section had been performed A large blood transfusion was required She lost her strength weight and libido and was constantly tired The axillary and pubic hair loss and low blood pressure accompanied by her non pigmented marble like skin supported the diagnosis of panhypopituitarism of Simmonds disease In addition the B M R was - 38 per cent 17 ketosteroids were 2 3 mg in 24 hours with a negative Kepler test and a serum cholesterol of 460 mg per cent Under the care of Dr A Kahan St James s Hospital London she recorded a dramatic improvement after regulated administration of D O C A testosterone implants as well as thyroid medication This is shown in chronological sequence in the accompanying illustrations They have been spaced at three six and nine monthly intervals

The clinical features of primary pituitary failure and secondary hypothyroid adrenal and gonadal failure are strikingly brought out in figures 362 and 363

The thyroid has become impalpable in a deeply sunken neck with relatively prominent sternomastoid muscles The pale marble like non greasy skin is however strongly contrasted with the deeply pigmented areolae of the nipples and the Caesarean operation scar This increased pigmentation is probably due to the associated adrenocortical failure chiefly of the zona fasciculata The hair of the head is coarse and straight with an absence of supraorbital axillary and pubic hair

The dramatic improvement in all these features including the loss of pigmentation in the adrenal substitution implant areas as well as the operation scar and nipples followed treatment by replacement therapy for secondary thyroid adrenal and gonadal failure (Figs 362 369)

In spite of the presence of pigmentation and its diminution with adrenal thyroid and gonadal replacement therapy the diagnosis of panhypopituitarism would be more easily sustained than that of Addison s disease The clinical and chemical response to such treatment by Williams (1950) is well illustrated in figure 370

A STUDY OF FOUR PATIENTS WITH FIBRO LYMPHOID HYPERPLASIA ASSOCIATED WITH MULTIPLE ENDOCRINE DYSFUNCTION

Autopsy findings of four patients with varied stages of fibro lymphoid hyper plasia of the thyroid gland are analysed and illustrated in figures 372 to 393 I am greatly indebted to Dr N Maclean of the Department of Pathology Edinburgh University for allowing me to study this material

Two of these patients presented features of hypoplasia and the remaining two those of hyperplasia of the pituitary gland Both instances of pituitary hypoplasia or atrophy were associated with adrenal hypoplasia

The two instances of pituitary hyperplasia showed no adrenal atrophy

We have thus a common denominator the factor of fibro lymphoid hyper plasia of the thyroid associated with both pituitary atrophy and hyperplasia as well as adrenal atrophy and hyperplasia Why then do we encounter these extremes of reaction in the pituitary as well as in the adrenal gland?

These findings are illustrated by the photographs of sections of the three organs the pituitary thyroid and adrenal arranged in a vertical series Each organ has been magnified by a constant factor The pituitaries and adrenals were magni fied three times whilst the thyroid gland underwent a magnification to the power of 15 In addition the macroscopical as well as microscopical appearances of these four thyroid glands are shown in the following pages

A study of these four patients in the vertical series shows —

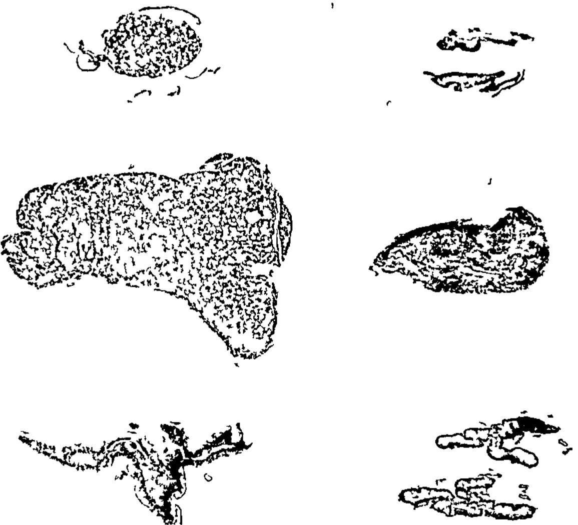
The first patient a female aged 63 suffered from severe myxoedema for 4 years (Figs 372 to 374) In addition there were stigmata of hypopituitarism including absence of bodily hair The anterior lobe of the pituitary showed complete atrophy with partial atrophy of the suprarenal gland

The second a male aged 67 had a history of myxoedema for 3 years and tabo paresis (Figs 375 to 377) There was only partial atrophy of the pituitary and slight atrophy of the adrenals

The third patient a female aged 63 years presented with subacute intestinal obstruction and some features of myxoedema The disposition of her body hair was normal The pituitary showed evidence of a mild degree of hyperplasia and the suprarenal was larger but normal in weight (Figs 378 to 380)

The fourth patient a female aged 43 years underwent a left hemi thyroid ectomy for a thyroid which had become obvious for the previous two years The specimen showed a typical late stage of fibro lymphoid hyperplasia with Hurthle cell degeneration and the early onset of fibrosis (Fig 382) Radiotherapeutic treatment to the thyroid gland (Fig 383) was followed by a severe mental illness She died in a mental hospital two years later

The remaining right lobe of the thyroid seen in figure 389 shows the typical fibrotic scarring following intense X ray irradiation which is corroborated by the microscopical picture The pituitary presented a moderate but definite degree of hyperplasia the adrenals weighing 12 9 gm being beyond the upper limits of normality



F G 371

Microscopical Changes in Panhypopituitarism (Simmonds Disease)

These are compared with the histology of their normal endocrine counterparts On the left are normal glands The abnormal atrophied and degenerated endocrine glands are shown on the right Arranged in vertical series are the pituitaries above the thyroids in the intermediate position and the adrenals below Note the lymphoid infiltration in the thyroid gland and the marked cortical hypoplasia in the adrenals Most of the



Fig 378



Fig 381



Fig 379 Fig 382 Fig 383



Fig 380



Fig 384

Figs 378 383

Autopsy Specimens of Four Patients with Fibro-Lymphoid Hyperplasia

Fig 384

See legend to figures 372 383


FIG 372


FIG 375


FIG 373


FIG 376


FIG 374


FIG 377

FIGS 372 377

Autopsy Specimens of Four Patients with Fibro-Lymphoid Hyperplasia

The pituitary thyroid and adrenal glands are arranged in vertical series Each organ has been magnified by a constant factor The pituitary and adrenals present a magnification to the order of 3 The thyroid gland is enlarged to 15 times the normal In horizontal series the four patients present pituitary changes (1) complete atrophy (2) partial atrophy (3) mild hyperplasia (4) moderate hyperplasia The adrenals similarly show (1) extensive hypoplasia, (2) mild hypoplasia (3) normal (4) minimal hyperplasia. The thyroids manifest fibro lymphoid hyperplasia in all four instances In the fourth patient the fibro lymphoid hyperplasia had undergone fibrotic changes following irradiation therapy

(Edinburgh Royal Infirmary)



Fig. 389 Fig. 390

Fig. 391 Fig. 392 Fig. 393

Figs. 389–393

Macroscopical and Microscopical Appearances of the Four Thyroid Glands studied in figures 372–384

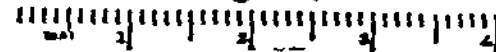
Figs. 389 and 390 The third patient's thyroid gland
Figs. 391, 392 and 393 The fourth patient's thyroid gland
Fig. 391 is second of the thyroid after radiotherapy to the gland
Fig. 392 shows microscopy before radiotherapy and
Fig. 393 shows microscopy after radiotherapy

Fig 385

Fig 386







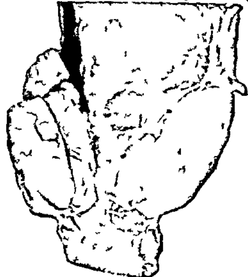






Fig 387

Fig 388

Figs 385 388

Macroscopical and Microscopical Appearances of the Four Thyroid Glands studied in figures 372 384

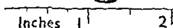
Figs 385 and 386 The first patient s thyroid gland
Figs 387 and 388 The second patient s thyroid gland.



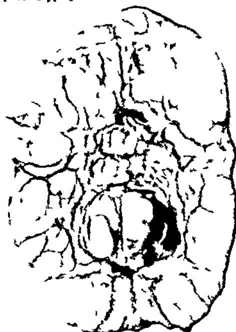
Fig 394
Early Fibro Lymphoid Hyperplasia







Figs 395 396
Fibro Lymphoid Hyperplasia Intermediate Stage



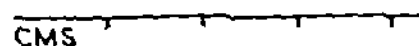


Fig 397
Fibro Lymphoid Hyperplasia Intermediate Phase with Multiple Trabeculae dividing the Gland into Lobules

A study of these features in horizontal series shows —

1 *Pituitary glands* are initially atrophic The glandular element becomes more obvious in the second pituitary to merge into an early cellular hyperplasia in the third The fourth patient shows an extensive generalised cellular hyper plasia of the pituitary with intensified staining of its constituent cells

2 *Thyroid glands* The gland of the first patient presents the typical atrophic features of Simmonds panhypopituitarism with lymphoid hyperplasia The second thyroid shows increasing lymphoid hyperplasia with a correspondingly increased fibrous deposition The fibrosis has increased greatly in the third gland with a diminution of the lymphoid element The two adjacent sections of the thyroid gland of the fourth patient show an advanced fibro lymphoid hyperplasia on the left The generalised severe fibrosis with preservation of minimal amount of lymphoid tissue following radiotherapy to the gland is shown on the right

3 *Adrenal glands* An advanced degree of cortical hypoplasia is seen in the first gland An increasing extent of cortical tissue still less than normal is shown in the second adrenal The third gland shows still further increased cortical hyperplasia with superimposed areas of intense focal adrenocortical hyperplasia Finally the fourth gland following the course of radiotherapy to the fibro lymphoid thyroid exhibits a generalised and more advanced diffuse adrenocortical hyperplasia in a greatly hypertrophied adrenal cortex The medulla by contrast has become relatively diminished in size

In summary As the thyroid glands progressively deteriorate with diminishing lymphoid hyperplasia and increasing fibrosis seen in the third and fourth patients the pituitary glands undergo increasing hypertrophy This increasing hypertrophy is reflected by a corresponding hyperplasia in the adrenal seemingly manifested after a latent time interval

Drawing conclusions from these few observations it could be argued that increasing degeneration of the thyroid gland may produce a diminished formation of thyroid hormone This would induce a compensatory cellular hyperplasia of the pituitary Resultant increase of adrenal corticotropic hormone may be responsible for the corresponding hypertrophy of the adrenal cortex

The first and probably the second patients on the contrary may have been instances of primary pituitary hypoplasia with secondary thyroid and adrenal hypoplasia

Conclusions

The fibro lymphoid phase of the thyroid whether early or late is obviously associated with changes in the other endocrine glands These changes are by no means uniform and as shown here may present striking contrasts in the pituitary and adrenal

Atrophy of the pituitary is associated with corresponding atrophy of the adrenals Further the degree of atrophy in the pituitary is reflected by changes in the thyroid gland Hyperplasia of the pituitary fails to show any atrophy of the adrenals it produces a corresponding hyperplasia of the adrenal cortices

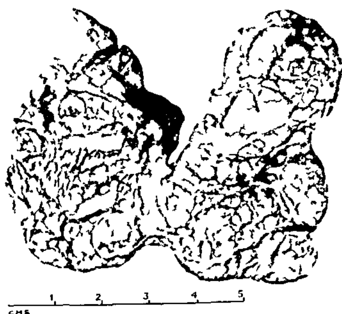
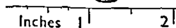


FIG 394
Early Fibro-Lymphoid Hyperplasia







FIGS 395 396
Fibro Lymphoid Hyperplasia Intermediate Stage



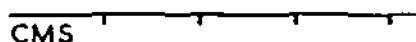


FIG 397
Fibro Lymphoid Hyperplasia Intermediate Phase with Multiple Trabeculae dividing the Gland into Lobules

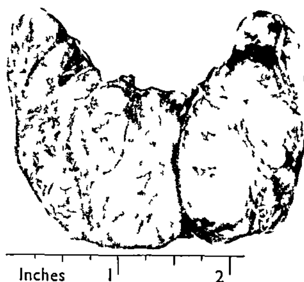


FIG 398
Fibro Lymphoid Hyperplasia Later Stage

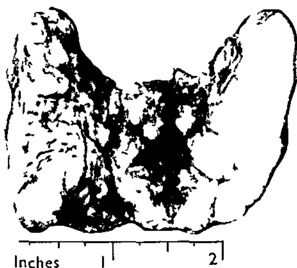


FIG 399
Fibro Lymphoid Hyperplasia Later Stage
Later stage with a more general homogeneity of the gland as seen in section

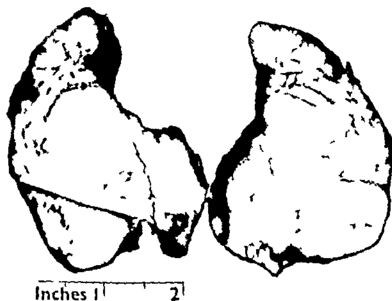


Fig. 400
Fibro-Lymphoid Hyperplasia Late Stage

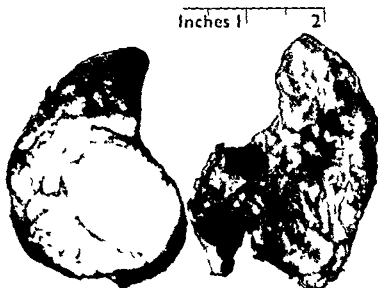


Fig. 401
Fibro-Lymphoid Hyperplasia Late Stage

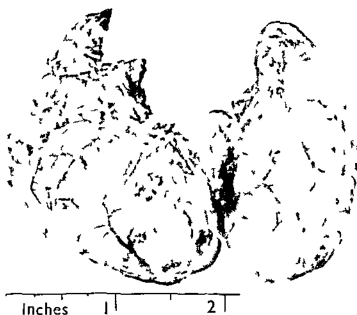


Fig 402A
Fibrosis Early Stage

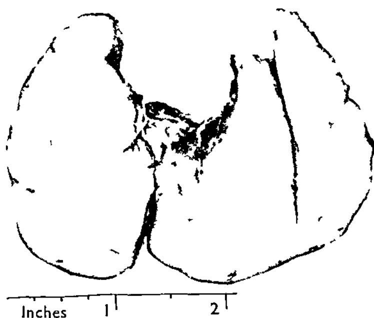
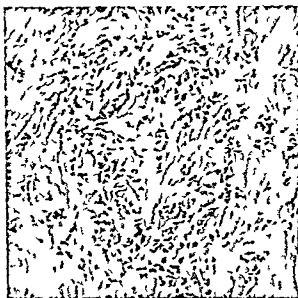


Fig 402B
Fibrosis Early Stage



A



B

Fig 403

Fibrosis of Thyroid

A **Microscopy of Fibrosis of the Thyroid** seen in figures 402A and 402B The predominance of whorled fibrous tissue with the great diminution of lymphoid tissue is very evident A few degenerated epithelial cells are still present

B **High power View of Fibrosis of the Thyroid** The many interlacing fibrous strands enclose and completely surround the few residual lymphoid cells

HYPOTHYROIDISM IN THE VARIOUS STAGES OF FIBRO LYMPHOID HYPERPLASIA

The progressive changes shown in the thyroid gland as the diffuse lymphoid hyperplasia is gradually replaced by fibrosis are illustrated in figures 394 403B Just as chronic mastitis chronic prostatitis and chronic metritis are now generally accepted as resulting from endocrine imbalance so the concept of chronic thyroiditis must undergo a critical evaluation Supported by the weight of evidence already examined in this book it must be assumed that hormonal imbalance plays a much greater role in these changes in the thyroid gland than was hitherto realised

The preceding macroscopical sections of thyroid glands with fibro lymphoid hyperplasia show the gradual change already described In none of their micro scopical sections is there any evidence whatsoever of a purely inflammatory change All the thyroid glands in this series were derived from patients who had undoubted advanced hypothyroidism

REFERENCES

Bartels E C Stuart C K Johnson E C (1940) *Trans Amer Ass Goiter* p 133
Bastenie (1937) *Arch int Med exp* 12, 1
Berson S A Yalow R S (1952) *J clin Endocrin* 12, 407
Blackwood W Dodds T C Somerville J C (1949) Atlas of Neuropathology E & S Livingstone Edin
Bowers R F (1939) *Trans Amer Ass Goiter* p 69
Braid F (1951) *Brit med J* 1 1169
Bronstein I P Milles G (1935) *Amer J dis Child* 49 1564
Cannon W B Cattell McK (1916) *Amer J Physiol* 196 41
Clayton Jones E (1947) *Lancet* 1 56
Conklin S D (1935) *Trans Amer Ass Goiter* p 22
Crile G W (1938) *Trans Amer Ass Goiter* p 1
Cushing H (1933) *Arch intern Med* 51 487
D Abreu A L Wood B S B (1950) *Arch dis Child* 25 235
Dorff G B (1934) *Amer J dis Child* 48 1316
Dougherty T F White A (1944) *Endocrin* 35 1
Goetz E Ritzmann A J (1934) *Arch Surg Chicago* 29 492
Gregg N McA (1941) *Trans Ophth Soc Austral* 3 35
Harris G W (1951) *Brit med J* 2 559
Hoskins R G (1910) *J Amer med Ass* 55 1724
Jarvinen K A J (1952) *Ann Rheum* 11 47
Jarvinen K A J (1948) *Ann Med Int Fenniae* 37 227
Kuhl W J Ziff M (1952) *J clin Endocrin* 12 554
Levitt T (1951) *Lancet* 1 947
Levitt T (1952) *Ann roy Coll Surg* 10 369
Maddock W G Coller F A Pedersen S (1936) *Trans Amer Ass Goiter* p 61
Maqsood M Reineke E P (1950) *Amer J Phys* 162 24
Maqsood M (1950) *Vet Med* 45 339
Paschkis K E Cantarow A Eberhard J Boyle D (1950) *Proc Soc exp Biol* N Y 73 116
Reiss M (1953) The Suprarenal Cortex edited by Yoffey J M Butterworths Scientific Publications
Russell A (1950) *Proc roy Soc Med* 43 914
Selye H (1946) *J clin Endocrin* 6 117
Shaw A F B Smith R P (19_5) *Brit J Surg* 13 93
Sheehan H L Summers V K (1949) *Quart J Med* 18 319
Simmonds M (1914) *Dtsch med Wschr* 40 32_
Statland H Lerman J (1950) *J clin Endocrin* 10 1401
Swan C Tostevin A L Moore B Mayo H Black G H B (1943) *Med J Austral* 2, 2017
Wallach D P Reineke E P (1949) *Endocrin* 45 75
Williams R H (1950) "Textbook of Endocrinology" W B Saunders Co Phil and Lond
Wolfson W Q., Beierwaltes W H Robinson W D Duff I F Jones J R., Knarpp C T., Siemienski J S., Eya M (1951) Proc of 2nd Clinical A C T H Conference London

CHAPTER XXV

THE COLLOID GOITRE

RELATION OF LYMPHOID HYPERPLASIA TO COLLOID GOITRE

THE appearance of lymphoid cells in association with colloid goitre can be explained partly by the effect of compression The localisation of the lymphoid cells of the adenoma in its false capsule formed by the true degenerated epithelial elements of the parent thyroid gland lends support to this hypothesis (Fig 14)

The section shows sub capsular deposition of lymphoid tissue under a relatively inelastic lining tending to restrict the expanding colloid filled cysts of a thyroid gland this is partly due to the multiple effects of pressure The specific disposition of the maximal amount of lymphoid tissue on the periphery producing a diffuse lymphoid hyperplasia and the minimal amount in the centre resulting in a lympho epithelial hyperplasia is in full accord with the concept of progression of the epithelio lympho fibrosis phases (page 122 and figure 135)

CLASSIFICATION

The colloid goitre a feature of follicular involution (Fig 26) undergoes degenerative changes due to advancing age and its associated relative ischaemia These changes may usefully be divided into the following three consecutive stages which are shown in tabulated form in table XXXVI

(1) Diffuse Epithelial Hyperplasia (Endemic)

The gland is symmetrical smooth and usually soft occasionally it may be firmer in consistency (Fig 337)

(2) Diffuse Colloid Goitre

The symmetrical smooth and soft gland increases steadily in size as the adolescent patient grows older (Figs 404 405)

(3) Nodular Colloid Goitre

(a) *Symmetrical and diffusely nodular* The generally nodular gland still retaining its symmetry becomes firm (Figs 406 407)

(b) *Asymmetrical and locally nodular* (pseudo adenomatous goitre) This so called adenomatous goitre increases irregularly in size corresponding with the varying extent of hyperplasia and involution Perinodal fibrosis occurs with advancing age and pressure is increased by the progressively inelastic capsule The gland becomes firm nodular and asymmetrical Discrete colloid adenomata may become separated from the parent thyroid gland (Figs 408 411)

A B

Fig 404
Simple Colloid Goitre
This simple colloid goitre simulates the clinical history and appearance of a diffuse lymphoid hyperplasia A Front view B Side view *(New End Hospital.)*



Fig 405
Simple Diffuse Colloid Goitre
Macroscopical view

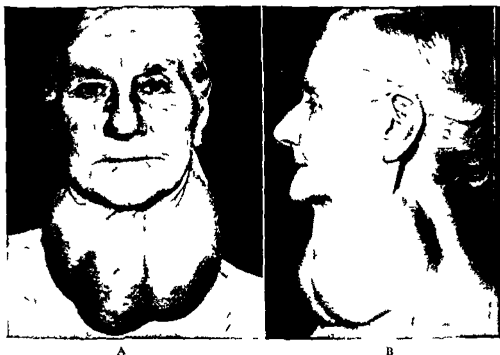


FIG 406
Nodular Colloid Goitre
A Anterior view B Lateral view
(New End Hospital)



FIG 407
Nodular Colloid Goitre
Macroscopical view



Fig 408



Fig 409

Figs 408 409

Asymmetrical Nodular Colloid Goitre with Pseudo adenomata

Anterior view (Fig 408) The trachea has obviously been deviated to the left by the nodular colloid goitre which is much more extensive on the right side Lateral view (Fig 409) *(New End Hospital)*



Fig 410

Asymmetrical Nodular Colloid Goitre of the Patient seen in the Previous Figures (Figs 408 409)

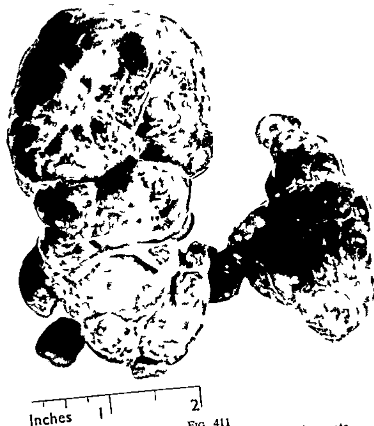


FIG 411
Asymmetrical Colloid Goitre with Pseudo adenomata

TABLE XXXVI

STAGES OF ENDEMIC COLLOID GOITRE

	Diffuse Epithelial Hyperplasia (Endemic)	*Diffuse Colloid*	*Nodular Colloid*
Synonyms	Parenchymatous goitre Struma parenchymatosa	Struma colloida diffusa	Struma nodosa Adeno parenchymatous goitre Multiple adenomata Adenomatosis
Time of clinical appearance	Congenital usually or infantile	Pubertal usually rarely congenital under 30 years of age	Over 30 years of age rarely congenital or infantile in areas of high endemicity or chronicity
Thyroid			
(1) *Macroscopical*			
1 *Symmetry*	Symmetrical	Symmetrical	Asymmetrical
2 *Capsule*	Thin	Slightly thickened	Thick may be adherent
3 *Surface*	Smooth	Pseudo lobulated	Nodular
4 *Size*	Small	Large	May be enormous
5 *Consistency*	Soft but sometimes relatively firm	Soft if in early stage Very firm in later stage	Firm or very firm
6 *Colour*	Fleshy	Pale pink or darker	Yellowish pink (early) White opaque (later)
7 *Vascularity*	Great	Diminished	Minimal
8 *Pressure*	Rare except for neo natal complications	Increased	Maximal
9 *Extensions*	—	Minimal	Retro { pharyngeal, oesophageal, tracheal, sternal }
(2) *Microscopical*			
1 *Epithelium*	Columnar to cubical Activity great	Flatter Less activity	Flattened Least activity
2 *Follicles*	Small irregular tubular trabecular or solid	Enlarged more regular	Greatly distended areas of regenerative epi thelial hyperplasia may occur
3 *Colloid*			
1 Amount	Absent	Very abundant	Most extensive
2 Stain	—	Moderate	Deep
4 *Lymphoid*	Nil	Absent Few lymphorrhages may occasionally be present	Present
Degeneration	Nil	Fibrous or Hyaline } slight	Extensive Haemor rhages deep red or brown yellow Necrosis and oedema Cysts—clear or brown Fibrosis Hyaline } stellate Calcareous Calcified spicules
Arteries	Anastomosis rich	Moderate	May be enlarged sinusoid
Functional capacity	Minimal	Euthyroid Hyperthyroidism occasionally	Reduced
Iodine content	Greatly reduced per unit of tissue	Normal or higher than normal	Reduced relatively

RADIOIODINE DIAGNOSIS

Radioactive Iodine Tracer Doses

The pre operative use of radioactive iodine tracer uptake doses serves to ascertain the affinity of a particular nodule or adenoma for iodine The use by Dobyns *et al* (1949) of the directional counter to establish the activity of the nodule pre operatively facilitates operative procedure Thus the ratio of counts per minute from the nodule to that of the extranodal tissue is established So called hot nodules are usually indicative of toxicity especially if this count is obtained while the nodule is still small Underactive or cold nodules often occur in benign or potentially malignant neoplasia such as in the embryonal adenoma or struma trabecularis et microfollicularis In contradistinction the struma macro follicularis typical of the large diffuse or nodular colloid goitre resulting from so called over ripe hyperinvolution shows but little radioactive tracer uptake Occult retrosternal adenomata have on occasion been diagnosed by this technique (pages 476 493)

Autoradiography

Autoradiography of the excised tissue and the surrounding paranodular tissue becomes a valuable aid during thyroidectomy It not only localises the adenoma but correlates its function with the structural change The difficulty however arises in that a hot hyperplastic adenoma may show hyperfunction only if it is large enough Malignant tumours are usually but not always inactive cold nodules with little uptake of iodine The presence of multiple pseudo adenomata in the terminal stages of an endemic goitre usually indicates absence of malignancy The following photographs however show the existence of a solitary relatively malig nant adenoma associated with multiple colloid adenomata (Figs 412 and 413) The moral is obvious any firm and nodular gland must always be suspected of malignant change

The work of Dobyns and Lennon (1948) has greatly increased the appreciation of the role of radioiodine in diagnosis and treatment The absence of any uptake of iodine is shown to correspond with the adenoma (Fig 414) Even the colloid pseudo adenoma shows no uptake while the intervening thyroid tissue takes up an excessive amount of iodine

In case of doubt however the adenoma should be treated as a malignant condition and excised with an adequately wide margin of normal thyroid tissue

TABLE XXXVI

STAGES OF ENDEMIC COLLOID GOITRE

	Diffuse Epithelial Hyperplasia (Endemic)	*Diffuse Colloid*	*Nodular Colloid*
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Time of clinical appearance	Congenital usually or infantile	Pubertal usually rarely congenital under 30 years of age	Over 30 years of age rarely congenital or infantile in areas of high endemicity or chronicity
Thyroid			
(1) *Macroscopical*			
1 *Symmetry*	Symmetrical	Symmetrical	Asymmetrical
2 *Capsule*	Thin	Slightly thickened	Thick may be adherent
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4 *Size*	Small	Large	May be enormous
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(2) *Microscopical*			
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2 *Follicles*	Small irregular tubular trabecular or solid	Enlarged more regular	Greatly distended areas of regenerative epi thelial hyperplasia may occur
3 *Colloid*			
1 Amount	Absent	Very abundant	Most extensive
2 Stain	—	Moderate	Deep
4 *Lymphoid*	Nil	Absent Few lymphorrhages may occasionally be present	Present
Degeneration	Nil	*Fibrous or* } slight Hyaline }	*Extensive Haemor* rhages deep red or brown yellow Necrosis and oedema Cysts—clear or brown Fibrosis } stellate Hyaline } Calcareous Calcified spicules
Arteries	Anastomosis rich	Moderate	May be enlarged sinusoid
Functional capacity	Minimal	Euthyroid Hyperthyroidism occasionally	Reduced
Iodine content	Greatly reduced per unit of tissue	Normal or higher than normal	Reduced relatively



FIG 414

Microscopy and Autoradiography of Adenomata in the Thyroid

A *Autoradiograph (upper)* Both adenomata were observed to have low grade iodine concentrating capacity but much less than that observed in the areas corresponding to the normal thyroid tissue between the two adenomata

B *Histological section (lower)* The adenoma is tubular and micro-follicular Below is a "*micro et macro f licular*" adenoma which has certain characteristics of a colloid adenoma

(Dobyns and Lennon J Clin Endocrin)



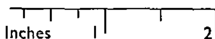


Fig 412
Localised Relatively Malignant Adenoma hidden by Multiple Nodules of a Nodular Colloid Goitre



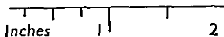


Fig 413
Section of a Relatively Malignant Adenoma and the Surrounding Host Tissue of an Asymmetrical Nodular Colloid Goitre



Fig 416



Fig 417

Fig 416 **Large Retrosternal Goitre** The anterior mediastinal projections extend down to just above the bifurcation of the trachea The posterior mediastinal mass reaches beyond the tracheal bifurcation
(Middlesex Hospital)

Fig 417 **Posterior Mediastinal Goitre** The posterior half of the retrosternal projection has been removed to show the macroscopical appearance of the gland *(Middlesex Hospital)*

Fig 418 **Section of Large Retrosternal Goitre and Trachea** Degeneration in a large retrosternal colloid adenoma shown in section extending down to the tracheal bifurcation and deviating the trachea
(Royal College of Surgeons of England)



Fig 418

COMPLICATIONS

(1) Pressure

The steadily enlarging diffuse endemic colloid goitre undergoes the constricting effect of an interstitial and a capsular fibrosis which results in the formation of false colloid adenomata especially in the lower pole These adenomata are further squeezed from their containing host the thyroid (Fig 411) by the fibrous tissue and associated forces and become pedunculated The pedicle may be broad or sometimes long and attenuated (Fig 205) providing a vascular supply to the separated adenoma (Fig 206) Gravity combined with the disposition of the fascial planes surrounding the thyroid usually forces the adenoma into the retrosternal space of



FIG 415
Anterior and Posterior Mediastinal Goitres with Constricting Pressure on Trachea
The anterior mediastinal projection passes anterior to the right subclavian artery The posterior mediastinal goitre lies deep to the aorta The trachea is deviated to the right and is compressed laterally by these masses

the anterior or much more rarely into the posterior mediastinum (Figs 415 418) pressure effects on the trachea oesophagus and the surrounding structures may be severe without any obvious cause

Retrosternal goitres are occasionally difficult to localise if they show no radiological evidence of deviation of the trachea or calcification Even radioiodine tests fail to indicate the adenoma which has no uptake of the iodide

The *plunging goitre* occasionally occult and asymptomatic can be made prominent by a forced but repressed expiratory effort Figures 419 A-F as demonstrated by Dr J N Harris Jones show this dramatic effect in a patient whose neck was of normal contour at rest Coughing or swallowing caused the neck to balloon out in a most alarming manner The patient could produce the tumour at will and retain it in its cervical position by extending the neck or by placing a finger below its inferior border



FIG 416



FIG 417

FIG 416 Large Retrosternal Goitre The anterior mediastinal projections extend down to just above the bifurcation of the trachea The posterior mediastinal mass reaches beyond the tracheal bifurcation (*Middlesex Hospital*)

FIG 417 Posterior Mediastinal Goitre The posterior half of the retrosternal projection has been removed to show the macroscopical appearance of the gland (*Middlesex Hospital*)

FIG 418 Section of Large Retrosternal *Goitre and Trachea* Degeneration in a large retrosternal colloid adenoma shown in section extending down to the tracheal bifurcation and deviating the trachea (*Royal College of Surgeons of England*)



FIG 418



FIG 419A
Patient at rest



FIG 419B
Patient coughing



FIG 419C
Anteroposterior X ray Patient at rest



FIG 419E
Lateral X ray Patient at rest



FIG 419D
Anteroposterior X ray Patient having swallowed



FIG 419F
Lateral X ray Patient having swallowed
(Royal Hospital Sheffield)



FIG 419G

X Ray of Retrosternal Goitre

Extensive tracheal pre sure and deviation Two retrosternal colloid adenomata The calcified mass is present in the right adenoma The adenoma on the left is responsible for the extensive deviation of the trachea to the right

An adenoma rarely occurs at the upper pole (Fig 420) It may extend behind the pharynx or larynx or displace these structures laterally The confined generalised nodular enlargement of an endemic colloid goitre in its terminal stage would produce the classical scabbard trachea with its lateral compression which may occasionally be extensive (Fig 419G)

The differentiation of these localised discrete colloid adenomata from the single benign or malignant tumour sometimes proves a difficult problem

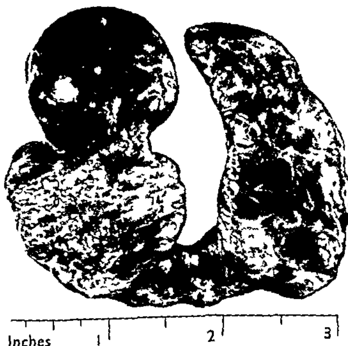


FIG 4.0
Adenoma involving the Upper Pole and causing Retropharyngeal Pressure
The sole presenting symptom was that of dysphagia

(2) Haemorrhage

This may occur suddenly in an adenoma of a young adult (Fig 421) or in the necrotic centre of a cyst (Fig 422) with sudden acute pain tenderness and severe pressure phenomena if the cyst be in contact with or behind the trachea and oesophagus or situated retrosternally Many firm adhesions form around the capsule and tie the thyroid down to the surrounding structures Removal of the involved part of the gland before resolution occurs may therefore be a difficult procedure The gland may closely resemble an acute thyroiditis and in an advanced stage may simulate the chronic thyroiditis of Riedel It resolves slowly often leaving cystic areas (Fig 423) unless previous surgical intervention has been undertaken for the relief of pressure phenomena

Fibrosis as shown in figure 424 may finally end in calcification (Figs 425 426 427 428 429)

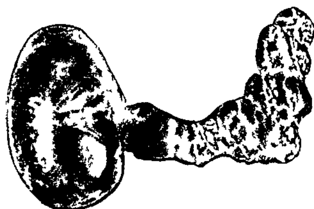


Fig 421
Haemorrhage in Colloid Adenoma

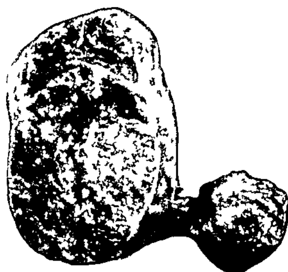


Fig 422
Degeneration in Colloid Goitre



FIG 423
Cystic Changes in Colloid Goitre

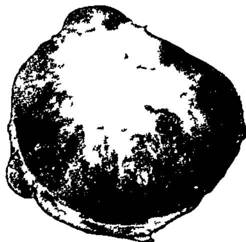


FIG 4 4
Fibrosis in an Adenoma occurring in Stellate Fashion

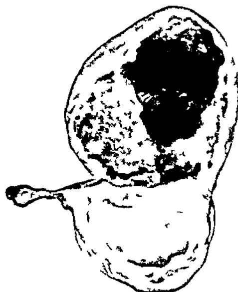


FIG 425
Calcification and Cyst Formation in Goitre



FIG 426
Degeneration Haemorrhage Calcification and Cyst Formation in a Colloid Goitre

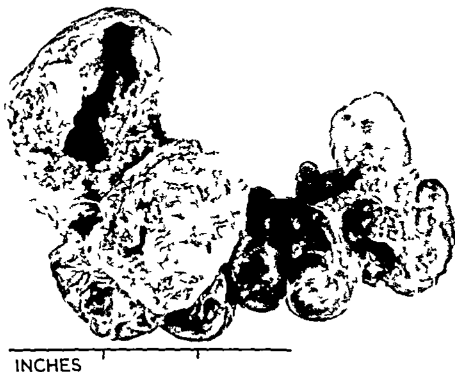


FIG 427
Calcification in Cyst of Asymmetrical Nodular Goitre



FIG 428
Calcified Cyst in Nodular Thyroid

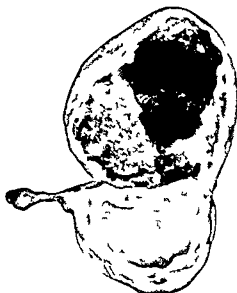


FIG 425
Calcification and Cyst Formation in Goitre



FIG 426
Degeneration, Haemorrhage Calcification and Cyst Formation in a Colloid Goitre



FIG 430
Suppuration in a Colloid Cyst with Spread to the Retropharyngeal Spaces

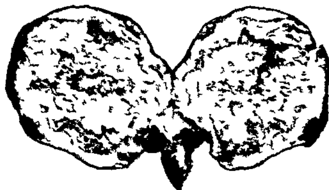


FIG 431
Malignant Change in an Endemic Colloid Goitre with Generalised Degeneration



FIG 429
Calcification in Thyroid Adenoma

(3) Suppuration

Suppuration may occur in the thyroid gland (Fig 430) especially if associated with an area of focal sepsis A localised abscess then forms with its characteristic features Compared with metastatic abscesses elsewhere the thyroid is a relatively infrequent site of such embolic infection Prostration of sudden onset occurs with accompanying pyrexia and characteristic torticollis due to spasm of the overlying sternomastoid muscle A hoarse voice cough and intense dysphagia accompany an indefinite swelling of the thyroid Examination is made more difficult by the surrounding oedema The inflammation may respond to adequate treatment with antibiotics or chemotherapy Very rarely an abscess may perforate into the trachea or mediastinum following injudicious postponement of surgical drainage

(4) Malignancy

It has long been known that carcinoma of the thyroid is much more common in regions of endemic goitre (Fig 431) than in other areas of the globe Wegelin has shown that it occurs in 1 per cent of autopsies in Switzerland Cancer causes one out of every 1 785 deaths in England and Wales It is twenty times more common in highly endemic areas accounting for 85 per cent of all the malignant

secretion of thyrotropic hormone is increased by too great a dosage The combination of these drugs with radioactive iodine in the treatment of a recurrent thyroid growth following a sub total thyroidectomy for toxic epithelial hyperplasia should be viewed with great suspicion Danger of neoplastic transformation becomes intensified

TREATMENT

The problem of the endemic goitre assumes exceptional importance in the watershed and lake districts of the world This becomes especially magnified in the *Alps the Swiss Austrian and Italian Tyrol the plains of central Europe and vast* areas of the United States Even the moors of England and South Wales are not exempt

Each stage of life with its corresponding phase in the life history of the endemic colloid goitre has its individual problems

Diffuse epithelial hyperplasia, becoming obvious at birth or soon afterwards occurs chiefly in the severely endemic Alpine countries Cretinism resulting from generations of goitrous families demands conscientious prophylaxis The sporadic hypothyroid infant in contrast can be found in all parts of the globe and usually results from maternal involvement by virus or infection during the first few months of pregnancy

The **diffuse colloid goitre** of puberty or adolescence is encountered more frequently in the central European plains Central Africa the lake districts of the United States and the moorlands of England It is a less serious problem and cure is often spontaneous

The **nodular colloid goitre** usually evolves from the diffuse type becoming most obvious during the climacteric occurring in all endemic areas it has its special problems The cardiotoxic multinodular goitre mimics the diffuse lymphoid or fibro lymphoid goitre with its increasing pressure phenomena and suspicion of malignancy

The occult and obvious retrosternal projection or localised colloid adenoma raise special difficulties in treatment The solitary nodule or adenoma may become obvious at any age of the patient or stage in the life history of the colloid goitre It should always be treated as a malignant growth especially if it changes rapidly to become hard fixed or exerts pressure on the recurrent laryngeal nerve

PROPHYLAXIS

The aetiological factors of endemic epithelial hyperplasia are discussed in a more detailed fashion in the chapter on hypothyroidism (Chapter XXIV)

The following features are significant —

1 *Prenatal care An adequate intake of iodine is important* during pregnancy in endemic areas Maternal rubella has been recognised as an important cause of congenital abnormalities in the progeny The advisability of a therapeutic abortion for a non immunised mother who becomes infected by the virus during the first trimester of pregnancy has been suggested by some authorities Iodine does not cure the sporadic case

goitres In contradistinction Graham and McWhirter (1949) have noted that in non endemic areas only 23 per cent malignancies have had a pre existing goitre Histologically intense epithelial hyperplasia of the endemic hypothyroid cretin appears at the one end of the spectrum papilliferous adenocarcinoma (Fig 441) is at the other

In 1952 Bielchowsky *et al* observed that the stimulation of the thyroid was not solely due to the secretion of thyrotropic hormone by the pituitary The blood and urine of uncomplicated cases of thyrotoxicosis contained no increased amounts of thyrotropic hormone which occurred only in cases complicated by ophthalmo pathy

The work of d Angelo (1951) de Robertis (1948) and Purves (1949) is quoted in support of this By the use of different methods they all failed to find elevated levels of thyrotropic hormone in the blood of patients with uncomplicated thyro toxicosis Bielchowsky concluded that high levels of thyrotropic hormone in the blood necessary in the rat for development of thyroid neoplasms do not occur in man Radioiodine studies by Werner (1953) indicate that thyrotropin may not be wholly responsible for the production of Graves s disease and that a non pituitary agent may be involved (page 491)

It is of interest to revert however to the work in 1851 of Niepce who found what he called characteristic enlargement of the pituitary in five cretins with endemic goitre

Doniach (1950) has shown in addition that radioactive iodine increases thyrotropic stimulus in the rat and further stimulates the disorderly epithelial overgrowth resulting in neoplasia Radioiodine thus resembles thiouracil and A A F (acetyl amino fluorine) in facilitating the neoplastic action of thyrotropin in rats

Is it then a fact that carcinoma following intense epithelial hyperplasia must occur in a hypothyroid medium? Could it be that the process of thyrotoxicosis prevents or at least suppresses the initiation or maintenance of malignant trans formation? The following photomicrograph of a patient whose thyroid underwent malignant change shows a relatively inactive stage of the gland the patient herself being but very mildly toxic (Fig 443) The case history of such a patient in this series is illustrated in figure 436

The problem becomes more complicated when the rare patient with thyro toxicosis living in an endemic area is given thiouracil Hermann (1951) treated two such patients in Switzerland continuing the dose of thiouracil for about 3½ years —a substantially long period

In both cases the glands developed adenomata with malignant features of penetration of the capsule as well as invasion of the blood vessels Whether these changes were due to the accepted potential property of an endemic goitre to become malignant or whether they were due to the superimposed and long continued hypothyroidism caused by thiouracil is still a matter for speculation

Anti thyroid drugs should be used only for a limited period and in a limited dose as a safeguard against a severe degree of hypothyroidism The resultant

secretion of thyrotropic hormone is increased by too great a dosage The combination of these drugs with radioactive iodine in the treatment of a *recurrent thyroid growth following* a sub total thyroidectomy for toxic epithelial hyperplasia should be viewed with great suspicion Danger of neoplastic transformation becomes intensified

TREATMENT

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2 *Communal care* This is essential in endemic areas

3 *Recognition of the goitre* The earlier the age at which the condition is diagnosed the sooner can adequate treatment be initiated and the more effectively will subsequent stigmata be reduced

4 *Iodine* Taken as an iodized salt it is the most easy and effective method of treatment The dosage differs in various countries being on the whole ten times larger in the United States than in Europe Too small a dose is ineffective while too large a dose has been responsible for the iodine thyro toxicosis or Iod Basedow so prevalent in Switzerland a few decades ago

5 *Thyroid* This drug is of little value in the endemic goitre but it is more effective for the sporadic case Large or small nodular goitres show minimal improvement The small diffuse and soft goitre which often improves spon taneously occasionally reacts favourably to dried thyroid gland therapy

SURGICAL TREATMENT

Surgical relief is indicated for the following complications of colloid goitres —

(*a*) Pressure

(*b*) Malignancy

(*c*) Toxicity

(*d*) Cosmetic

PRESSURE

This is by far the most common indication for surgery

1 Diffuse Epithelial Hyperplasia of the Adolescent (Non toxic Endemic)

No surgery is required as pressure effects are minimal A favourable reaction is usually recorded in the adolescent with treatment by iodine and occasionally when it is combined with dried thyroid gland therapy

2 Diffuse Colloid Goitre of the Adult

(*a*) *Moderate in size and in pressure* Conservative treatment is usually successful unless the goitre increases in size

(*b*) *Large with moderate pressure* A selective bilateral partial thyroid ectomy is indicated especially if the trachea is becoming scabbard and soft owing to pressure An adequate amount of normally functioning thyroid tissue must be retained

(*c*) *Large with severe pressure* A more extensive bilateral thyroidectomy must be undertaken Relatively normal tissue especially in the upper poles should if possible be retained to prevent subsequent hypothyroidism

3 Nodular Symmetrical Colloid Goitre

Small or large The goitre is potentially harmful and requires bilateral partial thyroidectomy The inferior thyroid arteries are ligated in continuity on both sides

(*a*) *When residue is adequate* The superior thyroid vessels must also be ligated

(*b*) *When the residue is inadequate* The superior thyroid vessels are left intact to prevent subsequent hypothyroidism

4 **Nodular Asymmetrical Colloid Goitre**

Bilateral partial thyroidectomy must be performed after both lobes have been carefully explored Small colloid adenomata are usually found in the opposite lobe These are removed meanwhile conserving the maximal amount of relatively normal tissue The parathyroid glands are likewise protected by an intracapsular extra adenomatous approach (Figs 432 435) Both inferior thyroid arteries are ligated The superior thyroid artery to the lobe containing the larger adenoma is usually ligated The integrity of the blood supply to the opposite superior pole is preserved in order to prevent subsequent hypo thyroidism

5 **Single Colloid "Adenoma" involving Most of the Lobe**

Principle Complete removal of a suspected adenomata is essential including an envelope of intact normal thyroid tissue The danger of malignancy is always present

(a) *Small* The involved lobe is partially removed together with the isthmus and the anterior aspect of the opposite lobe

(b) *Large* Subtotal lobectomy is performed leaving an adequate residue in the tracheo oesophageal gutter in order to protect the recurrent laryngeal nerve The isthmus and anterior aspect of the opposite lobe are also removed The superior pedicle of the latter lobe is ligated above the upper pole which is retained in continuity with the rest of the lobe This lobe must always be explored carefully to exclude any occult adenomata which must be removed The inferior thyroid artery is ligated on the side involved by adenomata

MALIGNANCY

6 **Suspect Solitary Adenoma**

Every solitary nodule in the thyroid must be removed Malignant degeneration or spread has been assessed as occurring in from 10 to 25 per cent of these solitary nodules In contrast malignant change occurs in 3 to 10 per cent of multinodular goitres

No age is exempt

Every adenoma which shows a relatively rapid recent change in consistency becomes hard larger or gives rise to symptoms of pressure on the recurrent laryngeal nerve is *immediately suspect It must be removed intact and then* examined microscopically to confirm or disprove the presence of malignant involvement

TOXICITY

Colloid goitres are rarely associated with toxicity Occasionally an elderly patient who has had an endemic goitre since childhood may suddenly show definite symptoms and signs of thyrotoxicosis of even a severe degree More frequently the onset of hyperthyroidism is insidious It may be noticed first as auricular fibrillation or cardiac failure and may be associated with either a multi nodular goitre or a single adenoma

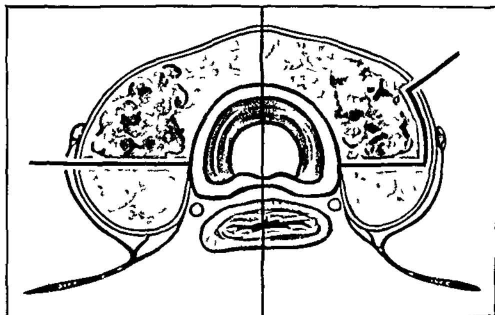


Fig 432 Fig 433

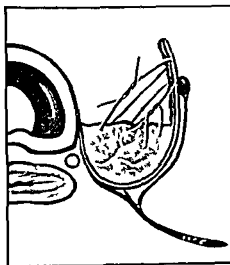


Fig 434

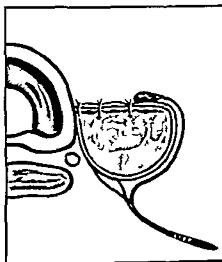


Fig 435

Figs 432 435

Formation of the Residue of the Thyroid Gland in Adenomata with Preservation of Parathyroids

Fig 432 *Incorrect method*—showing the removal of the parathyroid with severance of its blood supply

Fig 433 *Correct method*—the capsule is preserved together with the parathyroid gland The adenoma is removed from within the capsule formed by the thyroid tissue

Fig 434 *Approximation of the capsule to the residue*—the preserved parathyroid is apposed with the capsule to the residue which is fully covered by this envelope Haemostasis is also encouraged

Fig 435 *Final form of the reconstituted residue*—the blood supply to the para thyroid has been preserved The recurrent laryngeal nerve is intact

1 **The Nodular Symmetrical or Asymmetrical Goitre**
A bilateral subtotal thyroidectomy with ligation of the inferior thyroid arteries is advisable A total thyroidectomy sometimes results in dramatic improvement this is relatively easy as the gland can be mobilised with facility It carries the associated danger of recurrent laryngeal nerve paralysis and tetany It is therefore advisable to leave a strip of thyroid residue to protect the nerve subsequent hypothyroidism may if necessary be treated by means of thyroid extract

2 **The Single Nodule**
This may occasionally be the cause of delayed toxicity in a colloid goitre Previous radioiodine studies or the use of the gammagram (Fig 465) will have determined whether it is a hot or cold adenoma
It should always be removed if malignancy is suspected

COSMETIC CONSIDERATIONS

The age the *size of the goitre and personal idiosyncrasies* of the patient are the chief governing factors

1 **Age**
As a rule it is preferable to operate on an adult patient Occasionally when the goitre is large and disfiguring it may be advisable to operate during adolescence It is important to retain an adequate amount of relatively normal tissue to prevent hypothyroidism which may occasionally occur

2 **Size of Goitre**
(a) *Small goitres* especially if diffuse or non toxic should be treated conservatively unless complications such as toxicity or pressure ensue
(b) *Large goitres* should be removed by bilateral partial thyroidectomy especially if they give rise to additional signs of pressure

3 **Idiosyncrasies**
Women are for cosmetic reasons more willing to undergo operation which should however be advised with care especially in adolescence or when there is any subsequent danger of post operative hypothyroidism

REFERENCES

Bielchowsky F Griesbach W E Hall W H Kennedy T H Purves H D (1949) *Brit J Cancer* 3 541
Bielchowsky F (1944) *Brit J exp Path* 25 1
Bielchowsky F Griesbach W E Purves H D (1952) *Lancet* 1 310
d Angelo D A Paschkis K E Gordon A S Cantarow A (1951) *J clin Endocrin* 11 1237
de Robertis E. (1948) *J clin Endocrin* 8 956
Dobyns B M Lennon B (1948) *J clin Endocrin* 8 732
Dobyns B M Skanse B., Maloof F (1949) *J clin Endocrin* 9 1171
Doniach I (1950) *Brit J Cancer* 4 223
Graham J M and McWhirter R (1949) *Proc roy Soc Med* 40 669
Griesbach W E Kennedy T H Purves H D (1945) *Brit J exp Path* 26 18
Harris Jones J N (1953) *Post graduate med J* 29 84
Hermann F (1951) *Schweiz med Wschr* 8 1097
Lancet (1952) Leading article 1 86
Niépce B (1851) Traité du goitre et du cretinisme Paris
Purves H D Griesbach W E (1949) *Brit J exp Path* 30 23
Rouaille H L M (1949) *Ann roy Coll Surg* 7 (7
Wegelin C (1938) *Ann Anct Path Med Chir* 15 703
Werner S C Hamilton H (1953) *Lancet* 7 796

CHAPTER XXVI

MALIGNANCY
ITS RELATION TO THE EPITHELIO-LYMPHO-FIBROSIS PHASES

MALIGNANT change is seen in any of the epithelio lymphoid fibroid phases It can occur either as a carcinomatous or the very rare sarcomatous degeneration affecting either the epithelial or mesothelial derivatives respectively In a separate study *Malignant Disease of the Thyroid Gland* (1953) I have analysed 1 568 instances of malignant disease of the thyroid reported in the literature among which were 24 toxic goitres (1 5 per cent) Malignancy may masquerade under many a camouflage complicating diagnosis during its early stages of development

1 EPITHELIAL HYPERPLASIA AND MALIGNANCY

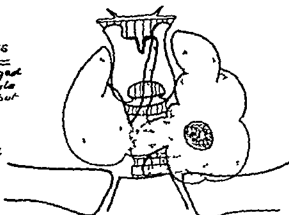
Epithelial hyperplasia is a more frequent progenitor of malignancy than is usually believed General use of many serial microscopical sections in all instances of partial thyroidectomy for the so called diffuse primary toxic goitre has revealed a number of instances of microscopic apparently occult malignant foci *(Figs 436 438) This has been well supported by the work of E Goetsch (1943)*

The growth may be due to an interfollicular rest hidden among the cells undergoing epithelial hyperplasia as postulated by Wolfler in 1883 or actual follicular epithelial tissue either undergoing dedifferentiation as claimed by A Graham (1929) or foetal in nature as asserted by Goetsch (1943)

It is of interest that as early as 1863 Virchow later supported by Hitzig (1894) postulated that the epithelial cells themselves were responsible for this malignant change Whether this is due to undisciplined growth of the fully developed epithelial cells or of immature foetal cells is still a matter for conjecture

Experimental work has helped to elucidate the relationship between physio logical and pathological hyperplasia between hyperplasia and neoplasia and between the benign and *malignant phases of neoplasia itself In 1931 Thomas* Dunhill drew attention to the great difficulty of differentiating histologically between compensatory epithelial hyperplasia and neoplasia Epithelial hyperplasia we have noted results from thyrotropic hormone excess and may present the features of *hypothyroidism or those of thyroxine excess in hyperthyroidism*





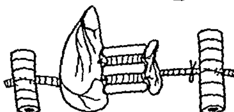


FIG 436
Localised Scirrhous Carcinoma in Toxic Goitre
Localised encapsulated scirrhous carcinoma of thyroid in a toxic goitre Pictorial case history as recorded by the author

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Fig 438

Transitional Phases of an Adenoma within a Toxic Thyroid Gland transformed into a Malignant Growth

Photomicrographs (× 12) of sections of scirrhous carcinoma occurring in exophthalmic goitre and *secondary to a primary malignancy of a minute* adenoma A Section through the centre of the adenoma and the surrounding scirrhous carcinoma showing on the right, perforation of the capsule and the *adjoining area of papillary* carcinoma while to the left an area of scirrhous carcinoma borders on the nodule Note the central necrosis in the adenoma and the subcapsular darker zone of calcium deposit B Section at a deeper level C *Section through the very periphery of the* nodule the capsule of which is still recognisable *as a central area of fibrous tissue Note the large* area of papillary carcinoma which had overgrown the primary nodule

(Goetsch Annals of Surgery)

The Hyperplasia Neoplasia Borderline

Experimental work chiefly on rats but also on cockerels mice and the rhesus monkey has supported evidence of instances in man where thyrotropic hormone excess is associated with neoplasia of both the benign and the malignant type In contradistinction the association of thyroxine excess with neoplasia as will be seen is extremely rare What then produces the dynamic stimulus which transforms an orderly epithelial hyperplasia into a lethal chaotic neoplasia? Is it the lack of thyroxine or the excess of thyrotropin? If the latter is it the quantity of thyrotropic hormone or the rate intensity or duration of this excess? Or is it another pituitary factor?



FIG 437

Papillary Adenocarcinoma occurring as an Occult Feature within a Diffuse Toxic Epithelial Hyperplasia of the Thyroid Gland

Photograph of the resected left thyroid lobe in a case of exophthalmic goitre Note the white nodule 0 5 cm in diameter which proved to be a typical scirrhous carcinoma In the centre of this lesion a minute adenoma 1 mm in diameter was found to be the site of a papillary adeno carcinoma which thus proved to be the primary lesion *(Goetsch Annals of Surgery)*

Radioiodine destruction of the thyroid gland in mice has been shown by Furth and his co workers (1953) to produce thyrotropin secreting tumours in the pituitary gland These hypophyseal tumours could be successfully transplanted into mice only after undergoing radiothyroidectomy Successive transplants eventually became autonomous and could then be transplanted into normal mice While maintaining a thyrotropin secretion they changed from hyperplastic into invasive and anaplastic pituitary tumours which could metastasise to regional lymph nodes

A correlation was established between the thyrotropin producing pituitary tumours and thyroid function The maximal stimulus to pituitary growth was attained by complete or near complete destruction of the thyroid gland

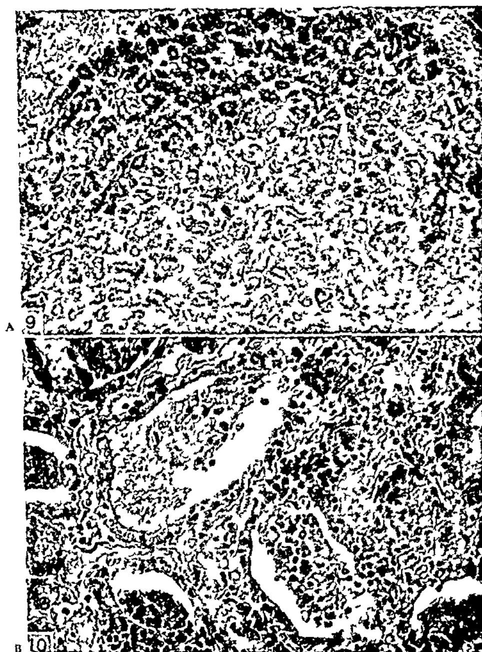


Fig 439

Effect of Thiouracil on the Toxic Thyroid Gland of Man

A localised hyperchromatic adenoma of the struma nodosa microfollicularis and tubularis type observed in the thyroid of a human after ten months of treatment for Graves's disease with thiouracil ×44 B Intrafollicular growths of undifferentiated tissue observed in the thyroid of a human after 18 months treatment with thiouracil for Graves's disease ×324

(Money and Rawson Trans Amer Ass Goiter)

EFFECT OF THIOURACIL IN MAN

Thiouracil therapy established for less than a decade was shown to produce neoplastic changes in human beings by Money and Rawson (1947) (Fig 439) Foetal adenomata or struma nodosa microfollicularis et tubularis were also recorded in their cases Furthermore Hermann (1951) in Switzerland reported two instances of thyrotoxic patients *treated by methyl thiouracil for three to four years* who developed multiple adenomata with capsular and blood vessel invasion in their thyroids

EXPERIMENTAL CONSIDERATIONS

In 1945 Griesbach and his co workers in New Zealand produced thyrotropin excess by feeding rats on a rape seed diet They found that the multiple adenomata which formed in the thyroids of rats were due to relative thyroxine deficiency This supported the work of Wegelin (1927) in Switzerland and Hellwig (1935) in the United States they had noted that diet deficient in iodine had produced similar adenomata in rats

A notable advance in our understanding of this problem was recorded when Purves and Griesbach in 1947 discovered that a thiourea diet gave rise to multiple malignant adenomata which produced secondary pulmonary metastases

Further Bielchowsky and his co workers in *1949 showed that these malignant adenomata could be grafted into other rats and that they very closely resembled* those in man being locally invasive and extensive A substantial advance for practical purposes was made however when they showed that these grafts were successful only in a thyroxine deficient pabulum obtained after radical thyroidec tomy or intensive sustained thiouracil therapy

Bielchowsky had already shown in 1944 that A A F (Acetyl Amino Fluorine) combined with thiouracil increased the size and accelerated the formation of the *tumours being in fact a carcinogenic agent* The A A F a fluorine derivative was responsible for ousting the iodine and for increasing the relative iodine deficiency and hence thyrotropic hormone excess

This effect was intensified after partial thyroidectomy and was further stimu lated by the radioactive isotope I^{131} The practical application of these findings is obvious It demonstrates the danger of using thiouracil with radioiodine in recurrent thyroid glands especially if the treatment is for pressure effects of a minimally toxic or non toxic thyroid residue

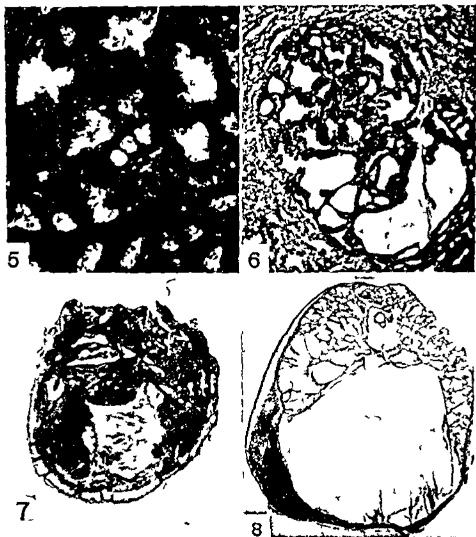


FIG 441

Effect of Thiouracil Treatment on the Thyroid Gland of the Rat

5 Hyperchromatic follicles with flat epithelium and colloid occurring in an area of hyperplasia and lack of colloid Seen after four months of thiouracil 200 ×

6 A papillary adenoma which was observed after nine months of treatment with thiouracil 70 ×

7 Degenerative changes found in the thyroid of an animal which had received thiouracil for 14 5 months 10 ×

8 Colloid cyst found in a rat thyroid after 16 5 months of treatment with thiouracil 10 ×

(*Money and Rawson Trans Amer Ass Goiter*)

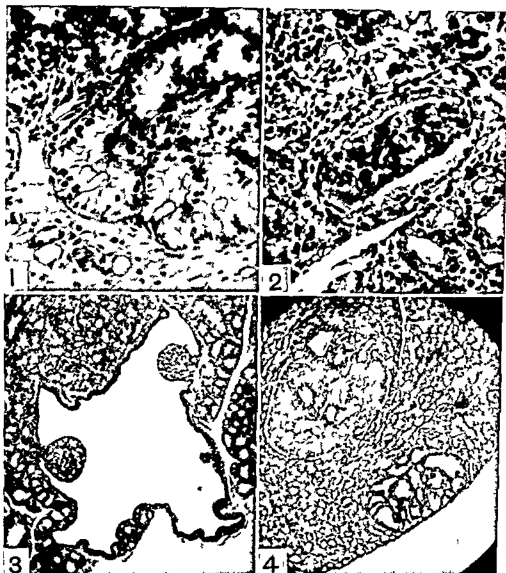


FIG 440

Effect of Thiouracil Treatment on the Thyroid Gland of the Rat

1 Thyroid of a rat after ten days of treatment with thiouracil 250 ×
2 Intrafollicular growth of undifferentiated tissue observed in thyroid of rat after five months of thiouracil 330 ×
3 Intrafollicular growths of undifferentiated tissue (see text) Seen in rat thyroid after 12 5 months of treatment 70 ×
4 Upper left corner shows intrafollicular growth occurring as part of a discrete adenoma after 15 5 months of thiouracil treatment In the lower right corner is another adenoma similar to that illustrated in Section 6 45 ×

(Money and Rawson Trans Amer Ass Goiter)

THYROTOXICOSIS AND MALIGNANCY

Hyperplasia the Precursor of Neoplasia

The role of two thyrotropic hormones thyroproliferin and thyrosecretin governing form and function of the thyroid respectively must be viewed in perspective Thyroproliferin may then produce intense epithelial hyperplasia even simulating neoplasia without any increase in function The added presence of thyrosecretin would result in increased function of the proliferated epithelium with added formation of thyroid hormone and subsequent thyrotoxicosis (page 35)

Intensive hyperplasia of thyroid epithelium may paradoxically be associated with excessive production of thyrotropic hormone with or without a similar increased formation of thyroid hormone In the former the epithelial cell has the power of transmuting iodine into thyroxine by means of thyrotropin In the latter it cannot do so with the result that the excess store of thyrotropin accumulates

Excessive thyrotropic stimulus producing a severe state of hypothyroidism may induce a histological appearance in the thyroid gland similar to that of severe thyrotoxicosis

The co existence of thyrotoxicosis with malignancy presents an important practical problem Two factors must be considered when assessing this malignancy toxicity association first the histological appearance of epithelial hyperplasia and secondly the clinical criteria of established thyrotoxicosis Furthermore the degree of thyrotoxicosis should ideally be assessed as mild moderate and severe A mild degree of hyperthyroidism should be differentiated from sympathetic overactivity associated with autonomic imbalance and from its great imitator the anxiety neurosis or allied psychopathic states

The wide discrepancy in the published figures may be due to this divergence of criteria for both the pathological and the clinical aspects of this problem

The Chief Problems

Much argument centres round the question whether results of animal experiments already described give a correct picture of the sequence of changes in the thyroid gland of man If they do as is probably the case diffuse hyperplasia in man can be followed by benign and then malignant neoplasia

HISTOLOGICAL EFFECTS OF ANTI THYROID DRUGS

The Four Stages

Money and Rawson (1947) noted four characteristic stages (Figs 440 and 441) in the thyroids of rats following prolonged thiouracil therapy —

Hyperchromatic follicles Diffuse epithelial hyperplasia was replaced by masses of high embryonic epithelial cells with abnormal nuclei and indefinite cell boundaries

Papillary cystadenomata The cells produced flattening of the true acinar epithelium and were often surrounded by connective tissue capsules forming localised adenomata They were intensely hyperchromatic Follicles were very irregular and often contained colloid

Degeneration in the adenoma Many sinus like spaces were formed which became filled with extravasated blood A haemorrhagic necrosis followed rupture of enlarged blood vessels into these sinus like spaces Factors causing such haemor rhage included nutritive changes in the adenomata following degeneration in the blood vessels probably due to thiouracil therapy

Colloid cysts These formed after prolonged thiouracil therapy for periods exceeding 18 months and sometimes followed final exhaustion of the atrophic epithelial cells of the acini

Lymphoid Adenomata resulting from Thiouracil Therapy

A discrete lymphadenoid nodule of the thyroid was reported by Money and Rawson (1947) in a thyrotoxic patient who had been given intensive thiouracil therapy for eighteen months The localised changes showed intrafollicular growths of undifferentiated tissue projecting into the lumina of several follicles simulating those seen in rats This instance isolated though it might be supports the thesis that the fibro lymphoid phases of the degenerating toxic thyroid gland are associated with steadily increasing thyrotropin excess and accompanying thyroxine deficiency The superimposition of malignant change in fibro lymphoid hyperplasia was seen in one patient in this study of 2 114 consecutive thyroidectomies

A latent interval of up to nine months may sometimes intervene between termination of the thiouracil drug treatment and the appearance of papillary tumours The importance of a prolonged follow up after the thiouracil regime and the need for investigation of recent nodularity in a diffuse toxic gland which has become non toxic must therefore be stressed

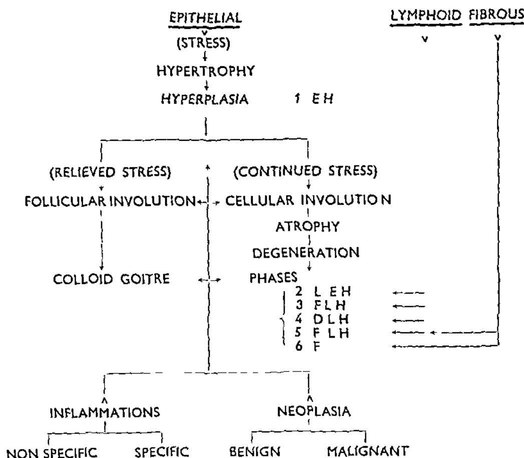


FIG 442

Scheme illustrating the Various Aspects of Thyroid Disease

The genesis of epithelio lympho fibrosis phases is illustrated showing the stages at which the lymphoid and fibrous tissue is superimposed on the basic epithelial elements Inflammation and malignancy involve any of these processes at any time and any place

In the second instance the operation is undertaken primarily for an obvious or a suspected malignant gland in a patient who shows some associated symptoms and signs of toxicity *It must be reiterated that the diffusely epithelial* hyperplastic gland is usually removed because of its obvious toxicity Rarely is a partial thyroidectomy performed on the non toxic gland and then it is only to relieve pressure phenomena or to anticipate malignant transformation

Does thyrotoxicosis arise from the exuberant growth of malignant cells or from the surrounding parenchyma of the thyroid? Is the malignant focus derived from a pre existing adenoma or from the extra adenomatous tissue? What are the relative roles of the primary growth and its metastasis in the production of toxicity and what is the problematical function of goitrogenic drugs in initiating or perpetuating cancer?

Figure 442 co ordinates the concept of follicular and cellular involution with the onset of malignancy as I had suggested in 1952 Neoplasia may appear at any phase of development or deterioration of the toxic thyroid gland Thus malignancy may complicate a thyroid with normal architecture or arise in a gland undergoing epithelial hyperplasia of a non toxic or toxic nature

Carcinoma of the thyroid gland may occur at almost any age irrespective of the pathological state of the gland

GENERAL ASSOCIATION OF MALIGNANCY AND TOXICITY

The Roles of the Physician, Surgeon and Pathologist

An important problem to be dealt with is whether carcinoma arises from the epithelial parenchyma of a toxic gland or whether it is an independent fortuitous but coincidental occurrence

While toxicity can be assessed clinically malignancy is seldom diagnosed confidently except in the rare undifferentiated swiftly spreading and obviously lethal carcinomata It is more often discovered during macroscopical study of the gland at operation or in the laboratory Most frequently however malignancy especially when associated with toxicity is only determined on microscopical section of a small stellate scar in the gland especially after many serial sections have been examined

The Two Approaches

There are two aspects which need careful consideration —

(1) The incidence of malignancy in thyroidectomies performed for so called exophthalmic goitre

(2) The incidence of toxicity in operations performed for malignant goitre

In the first instance the operation is completed for a diffusely enlarged goitre in a thyrotoxic patient the malignancy having been detected initially by the micro scopist often only after multiple serial sections The case history of such a patient is illustrated in figure 436

INCIDENCE OF TOXICITY IN MALIGNANT GOITRES

Usually the presence of malignancy is suspected before operation It becomes obvious at operation to be confirmed at subsequent microscopical examination

The presence of thyrotoxic phenomena usually forms an unimportant aspect of the clinical picture In nearly all such instances of thyrotoxicosis reported in the international literature the degree of toxicity had been mild No instance of severe thyrotoxicosis was established in any of the 256 malignancies which I studied (1953) at four centres in London

The incidence of toxic goitre in other series of malignancy reported in the international literature is shown below —

Pemberton J de J	(1928)	1 toxic goitre in	276	malignancies
Coller F A	(1929)	1 toxic goitre in	90	malignancies
Clute and Warren	(1935)	4 toxic goitres in	226	malignancies
Pemberton	(1939)	10 toxic goitres in	774	malignancies
Goetsch	(1943)	7 toxic goitres in	52	malignancies
Ward R	(1944)	1 toxic goitre in	168	malignancies
Total		24 toxic goitres in	1 586	malignancies or 1 5%

I have omitted the negative findings of malignancy reported by Wilson (1921) and Simpson (1926) in their respective series of 290 and 55 carcinoma Their histological criteria used before Allen Graham s (1929) detailed pathological definition of malignancy were not in my opinion in full agreement with those of subsequent workers

It is of interest that Friedell (1941) divided the group showing toxicity into (1) those manifesting the clinical features of hyperthyroidism and (2) those with the pathological features of epithelial hyperplasia In a large series of 412 carcino mata there were 57 or 3 8 per cent with clinical thyrotoxicosis and only 12 or 2 9 per cent with true epithelial hyperplasia The incidence of thyrotoxicosis may therefore have been unduly high

The criteria for assessment of toxicity must be rigid Not only must there be the obvious clinical features but also an adequately raised basal metabolic rate and response to iodine or thiouracil Furthermore the histological features of epithelial hyperplasia should be carefully considered

Two Illustrative Cases

The accompanying photomicrographs (Figs 443 446) show the thyroid of a patient who had presented the classical features of the most obvious thyrotoxicosis recorded in my series of 256 patients She underwent partial thyroidectomy for a primary diffuse toxic goitre The bulk of the tissue was composed of lobules of small closely packed follicles containing little colloid The larger follicles had columnar celled epithelium with some infolding of the walls A small amount of lymphoid infiltration was apparent Sections taken through a small scar like nodule

INCIDENCE OF MALIGNANCY IN ROUTINE THYROIDECTOMY FOR THYROTOXICOSIS

Use of Serial Sections

The more generalised use of serial histological sections has clearly brought to light more such malignancies of microscopic dimensions The five instances of malignancy associated with hyperthyroidism quoted by Berlin and Cargill (1947) were undoubtedly thyrotoxic Four of these suffered from exophthalmos In none was malignancy suspected In all the diagnosis was established at subsequent microscopy The fifth patient had a markedly hyperplastic thyroid with an embryonic adenoma showing invasion of its blood vessels

Incidence in Diffuse Toxic Goitre

In a series of 5 876 thyroidectomies for exophthalmic goitre Herbst (1924) could find no associated malignant degeneration Malignant change was also absent in 159 such thyroidectomies studied by Simpson in 1926

This reported lack of malignant transformation confirmed by his own findings prompted Broders in 1929 to postulate categorically that the incidence of carcinoma in diffuse toxic goitres was practically nil A decade later in 1937 Means supported this view adding that thyrotoxicosis was an assurance against carcinoma of the thyroid

Finding only one malignancy in 1 900 thyroidectomies for so called exophthalmic goitre R Ward in 1944 repeated these statements more categorically adding furthermore that cancer was almost unknown in exophthalmic goitre Black (1948) reported the presence of one such carcinoma in a series of 234 thyroidectomies for diffuse exophthalmic goitres an incidence of 0 4 per cent This was found to be a papillary adenocarcinoma

The experimental work already described which had been carried out in rats by Money and Rawson in New York and by Purves Griesbach and Bielchowsky in New Zealand serves to stress the papillary nature of these malignant growths

Effect of Nodular Changes

Toxic diffuse goitres have been further separated as a group from toxic nodular goitres by Cole and his co workers in 1949 They found only one malignant growth (0 2 per cent) in a series of 517 toxic diffuse goitres but four such growths (1 0 per cent) in 378 *toxic nodular goitres*

Non toxic goitres however showed a far greater incidence of malignancy *Non toxic nodular goitre* attained the high incidence of 17 5 per cent while the *non-toxic single nodule* reached a relatively very high incidence of 24 4 per cent involvement by malignancy This latter figure supported that found by Crile at the Cleveland Clinic in 1948 in his analysis of 537 nodular goitres

Thus not only the presence or absence of toxicity but also the general nodularity or the isolated appearance of a nodule in the thyroid has been shown to affect the incidence of malignancy in the gland

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Figs 443 446

Carcinoma in Thyrotoxic Gland

Microscopical features Fig 443 (×110) Fig 444 (×110) Fig 445 (×250) Fig 446 (×250)

showed a papillary carcinoma which was roughly demarcated from the hyperplastic glandular tissue by follicles of normal appearance This focus of well differentiated tubulo papillary adenocarcinoma revealed a fibrous and slightly lymphoid stroma with an irregularly demarcated infiltrating periphery

Figures 447 449 illustrate the relatively rare instance of a patient aged 72 years (Fig 447) who had suffered from an endemic goitre since childhood It had increased steadily in size for the previous 42 years since her last childbirth The growth had suddenly become rapid during the previous year and was associated with an unmistakable presence of toxicity It was found to be encapsulated at operation (Fig 448) with the exception of an area half an inch in diameter shown in the upper left quadrant which had invaded the trachea The wide and generalised infiltration of this anaplastic growth within the thyroid is well shown in figure 449

SITE OF ORIGIN OF CARCINOMA

Adenoma the Precursor

Malignant change can and does occur either in a pre existing adenoma or the parenchyma of the thyroid gland itself The adenoma may be an area of focal epithelial hyperplasia or a true benign or malignant growth derived from a congenital thyroid rest

The adenoma may be toxic in nature with an uptake of radioactive iodine and be surrounded by normal thyroid parenchyma On the other hand it may be non functioning having no uptake of iodine and enclosed by diffuse epithelial hyperplasia with an iodine uptake It is of interest that as in the specimen previously discussed (Fig 443) there may be an area of normal tissue acting as a barrier between the adenocarcinoma and the surrounding hyperplastic tissue The relation between the malignancy and toxicity in this case however becomes more difficult to assess

The Value of Serial Sections

The work of Goetsch (1943) dealing with this problem has therefore proved of absorbing interest On the assumption made by a number of previous observers that between 80 and 95 per cent malignancies of the thyroid are derived from pre existing benign adenomata he systematically subjected diffuse primary toxic goitres to many serial sections He found that the embryonic or foetal adenoma of microscopic dimensions already described was the common precursor of malignant transformation within the toxic diffuse epithelial goitre (Figs 438 A B and C) The original encapsulated periphery was soon invaded by the growing adenoma which spread irregularly into the surrounding thyroid parenchyma By this actively invasive procedure it destroyed irrefutable evidence of its early beginnings unless the microscopist was fortunate enough to detect the adenoma in its earliest phase of expansion while still encapsulated In the nine histologically confirmed instances of malignancy in a toxic diffuse epithelial hyperplasia four well defined encapsulated foetal adenomata were found undergoing malignant



FIG 447

Carcinoma of Thyroid in Endemic Colloid Goitre

Malignant change in chronic endemic goitre The patient aged 72 years had suffered from goitre since childhood It had increased steadily in size since the last childbirth at the age of 42 years The growth had suddenly become intensified during the previous year and was associated with an increased degree of toxicity

(New End Hospital)

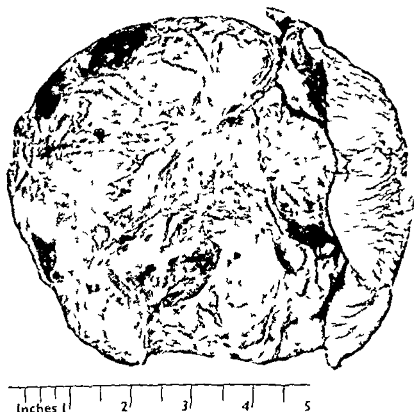


Fig 448

Macroscopical Appearance of Malignancy in an Endemic Goitre (Fig 447)

The mass had become adherent to and had invaded the trachea as shown in the upper and left hand part of the tumour The remainder of the mass was not fixed to the surrounding structures *(New End Hospital)*



Fig 449

Section of the Growth (Fig 448)

Invasion of the whole gland with central necrosis A pleomorphic carcinoma had involved the colloid growth diffusely



FIG 447

Carcinoma of Thyroid in Endemic Colloid Goitre

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(New End Hospital)

Chemical Carcinogens

The work of Bather and Franks (1952) supported previously recorded findings that the incidence of carcinoma at the site of injection of chemical carcinogens such as dibenzanthracene was reduced by the simultaneous in ection of a single dose of thyroxine or other metamorphosing hormones given with the carcinogen

Mice were injected in batches with 1 2 5 6—dibenzanthracene either with or without thyroxine These mice were killed after four weeks and their carcass s examined histologically It was found that the amount of residual carcinogen was appreciably lower in the thyroxine treated animals

Furthermore those treated with the carcinogen and thyroxine were compared with the animals subjected to both carcinogen and thiouracil The dose response curve of mice to the sarcomagenic action of the dibenzanthracene was recorded It was soon evident that while thyroxine lowered the incidence of tumours produced by the carcinogenic dibenzanthracene thiouracil increased it markedly Once the tumour had become established however thyroxine showed but little effect on the growth

It was suggested that the thyroxine played an active part in the defence mechanism of normal cells against carcinogens by increasing the metabolic destruc tion of the carcinogen at least when the latter was injected subcutaneously in sub maximal doses This thyroxine thyrotropin balancing control on the mechanism of carcinogenesis has further interesting and important side issues

The Control of Cell Activity

It might be suggested that malignancy is due either to uninhibited action of the internal mechanism of the cell itself or loss of control of the cell activity by its encompassing host tissue Growth is relative The cell may grow at a faster pace and thus outstrip the host or it may continue to grow at a normal rate within a host whose rate of growth has become appreciably retarded Excess proliferation of the cell itself or a nest of cells may be false not actual

This is the problem of the so called malignant adenoma Its cells may be growing at a rate faster than the normal in fact a true increase of proliferation rate On the contrary they may be continuing their normal rate of growth in a tissue showing diminished growth—false or unreal proliferation

Thyroxine produces a general increase of the embryonic individuation field It stimulates metamorphosis of tissues This is specially seen in Gudernatch s meta morphosis test of tadpoles in which thyroxine by retarding the overall growth rate changes baby tadpoles into baby frogs no larger than flies Pituitary hormone by increasing the growth rate and preventing metamorphosis produces giant infantile tadpoles

Thiouracil produces a generalised decrease of growth Certain thyroid cell nests may escape this retarding effect These islets become papilliferous and form false benign adenomata They virtually demonstrate this false increase of prolifera tion It is when the thiouracil is combined with a carcinogen such as A A F that a true proliferation is manifested The transplantation of these tumours was shown by Bielchowsky Griesbach and Purves (1949) to occur only in a host already rendered hypothyroid by previous thiouracil therapy

degeneration In three instances there was a scirrhous carcinoma the eighth nodule showed papillary adenocarcinomatous transformation while the ninth was a typically malignant embryo foetal adenoma

Three Conflicting Views

Two theories claimed that these malignant growths arose from the follicle itself A third view incidentally the oldest held that the extra or inter follicular anlagen or cell rests left behind during the process of growth were the source of the tumour

(1) *Wolfler s interfollicular 'rest theory* This was first propounded in 1883 in a statement to the effect that hidden by an exuberant epithelial hyper plasia these potentially malignant embryonic cells may be stimulated into malignant transformation by a diversity of causal agents

Wolfler s embryonic rest theory was subsequently supported by Ribbert in 1915 but was discounted by the work of Rienhoff in 1929 who reproduced the thyroid structure by means of superimposed laminated layers of wax reconstruc tions he found that the so called extra follicular acini were in fact sections of follicles transected tangentially

(2) *Graham s follicular dedifferentiation theory* It was suggested in 1929 that the actual cells of the follicle were stimulated to revert to a more embryonic and anaplastic form Whether an excess of thyrotropic hormone associated with a corresponding lack of thyroid hormone initiated this uncontrolled cell division still remains undetermined

(3) *Goetsch s follicular foetal cell theory* In 1943 Goetsch observed the presence of undeveloped embryonic and foetal cells in the follicle itself differing in character from the true hyperplastic cells He noted a rich content of rounded short filamentous or granular mitochondria simulating the embryonic cells

Whichever of these three views is eventually adopted it is clear that it is not the hyperplastic epithelial cell itself which usually undergoes malignant trans formation Even in the animal experiments already cited the epithelial lining atrophies and is replaced by more deeply situated anaplastic cells As the thyroid follicle is generally reputed not to possess a true basement membrane the transit of these cells and consequent spread is far more easily understood

RELATIONSHIP OF THYROXINE TO CARCINOGENESIS

The Growth Factor

It is of absorbing interest that the metamorphosing property of thyroid hormone or extract is strongly opposed to growth factor of the thyrotropic stimulus of the pituitary Much further light was shed on this problem at the meeting of the American Association for Cancer Research at New York in April 1952

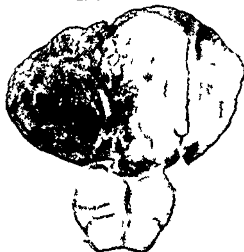


FIG 450

Reticulosarcoma simulating a Diffuse Lymphoid Hyperplasia

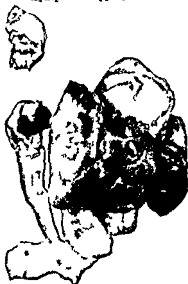


FIG 451

Reticulosarcoma of Figure 450 in situ with Thrombus in Internal Carotid Artery and Resultant Cerebral Embolism

The specimen was dissected at autopsy A secondarily involved lymph node is seen above the bifurcation of the common carotid artery An adherent malignant thrombus is visible at the commencement of the internal carotid artery The embolus in the brain produced the fatal termination

Transplantation of Tumours

An identical process is effected by the transplantation of tumours in embryos These tumours are made up of cells which are apparently multiplying at a normal rate in host tissue whose growth acceleration has been retarded They become *papillomatous in structure When grafted into equivalent embryos of the same* species they maintain their previous normal rate of growth They grow therefore at the same rate as their new surrounding tissue lose their papillomatous character and are slowly absorbed in a manner similar to the final fate of bone grafts Their new found false and therefore relatively neoplastic character becomes lost in a new environment under normal endocrine control

Pulmonary metastases are virtually vascular transplants from apparently benign thyroid adenomata Their role and function are amply illustrated in these transplantation effects shown in embryos The transplants may become embedded in the host tissue of the lungs If the host is supplied with the normal or adequate amount of thyroxine its pulmonary implants automatically become absorbed If the host is rendered hypothyroid the growth rate of the host tissue is retarded *and the relative excess multiplication of its cells will be enhanced producing grafts* which take in the lung parenchyma The added presence of a carcinogen in this environment endows the grafts with more malignant characteristics

The roles of thyroxine and thiouracil in respectively depressing and increasing the action of the carcinogenic agents on the thyroid gland become more comprehensible

2 LYMPHOID HYPERPLASIA AND MALIGNANCY

The line dividing hyperplasia from neoplasia of the lymphoid cell is very fine

Sarcoma

Sarcoma of the thyroid is exceedingly rare In a study of 256 malignant growths of the thyroid occurring in London I found eight sarcomata giving a 3 per cent incidence This is in agreement with other published figures for sarcoma

Arising either from the reticular supporting framework identified selectively by the Bielchowsky Foot stain or from the lymphoid material enclosed by this scaffolding sarcomata fall into two groups reticulosarcoma and lympho sarcoma Furthermore the reticulosarcoma is either undifferentiated with few interspersed reticulum fibres traversing the gland or differentiated with fully formed phagocytic cells such as monocytes or plasmocytes included in its structure The lympho sarcomata are similarly lymphoblastic or lymphocytic in type

(1) *Lymphocytic lymphosarcomata* with small mature round celled lymphocytes filling the lymphoid follicles may be very easily mistaken for an intense degree of focal or even diffuse lymphoid hyperplasia The latter in the pre *Hashimoto or lymphadenoid* stage shows such a microscopical resemblance to lymphocytic lymphosarcoma that differentiation may be difficult Both have lymphoid follicles with germinal centres the malignant cells however contain more deeply stained nuclei with evidence of mitotic division

has cell masses differing from focal lymphoid hyperplasia in that they are disposed diffusely as in diffuse lymphoid hyperplasia Unlike the latter there are no germinal centres hidden within the lymphoid follicles The cells also show malignant features much more clearly with deeper staining and exaggerated mitosis

The acinar epithelial cells of diffuse lymphoid hyperplasia maintain their con figuration in spite of their individual deterioration but lose this feature in the small cell carcinoma Furthermore the blood vessels of this virulent malignant growth soon show malignant emboli which are undoubtedly absent in lymphoid hyperplasia (Fig 462)

This may be summarised as follows —

	Round cell Sarcoma	*Small cell Carcinoma*	*Diffuse Lymphoid Hyperplasia*
1 Lymphoid follicles with germinal centres	Present	Absent	Present
2 Acini	May be present	Absent	Present
3 Malignant thrombi in blood vessels	Present	Present	Absent

This difficulty in diagnosis is emphasised in a study of a patient illustrated in figure 453 where I recorded the operation findings pictorially The clinical history and operation findings were typical of malignancy yet the section of the gland resembled that of a late stage of diffuse lymphoid hyperplasia

The microscopical features are shown in figures 454 462 the upper row being magnified 110 times and the lower row 250 times

The growth recurred swiftly after operation being accompanied by enlarged cervical nodes as well as steadily increasing pressure phenomena The microscopical picture of a different part of the gland is shown in figures 460 461 and 462 which are magnified respectively by 20 110 and 250

(2) *Large cell carcinoma simplex* may assume two forms the giant cell and the spindle cell carcinoma Clinically its extremely lethal properties closely simulate and actually exceed those of the small cell carcinoma already discussed but it is less frequent than the latter

(a) *Giant multinucleated pleomorphic cells* are freely interspersed with smaller round cells disposed in masses or arranged diffusely Acini are wiped out quickly in the infiltrated areas There is but minimal stroma Its giant cells resemble those of fibrosis of Riedel Malignancy is however differentiated microscopically from Riedel s fibrosis by its characteristic associated stigmata of intensity of staining and nuclear changes instead of the degenerative epithelial changes seen in later fibro lymphoid hyperplasia and in fibrosis

(b) *Spindle cell carcinoma* is very rare Variously styled carcinoma sarcomatodes and sarcoma carcinomatodes it may in turn simulate terminal fibrosis of the thyroid

(2) *Reticulosarcomata* (Figs 450 and 451) *especially of the differentiated type* may simulate early fibro lymphoid hyperplasia with its fibrous accumulation superimposed on the *general diffuse* lymphoid hyperplasia The deposition of fine *reticulum fibres differs from the* coarser and more defined collagenous tissue which is seen in fibro lymphoid hyperplasia the cells of which do not manifest evidence of malignancy

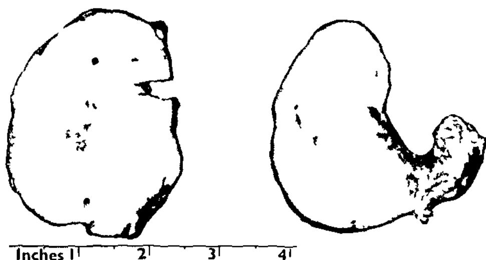


FIG 452

Malignancy simulating Fibrosis of Thyroid

The very close superficial similarity between the diffuse anaplastic carcinoma of the thyroid gland on the left with an advanced stage of fibrosis of the thyroid on the right is very marked (*Westminster Hospital*)

Carcinoma

Carcinoma of the undifferentiated type may likewise simulate diffuse lymphoid hyperplasia This carcinoma simplex may occur in both the small and large cell forms occasionally making it difficult to differentiate it from the late stage of diffuse lymphoid hyperplasia the later fibro lymphoid hyperplasia and the fibrosis of Riedel (Fig 452)

(1) *Small cell carcinoma simplex* is either of the compact or diffuse type

The *diffuse type* in the parenchyma of the gland does not show the separating honeycombs of the compact group Its anaplastic round cells are distributed generally with minimal representation of interlacing trabecular compartments The clinical and macroscopical features of malignancy with swift and unrestrained infiltration into the surrounding structures are well advanced when first encountered at operation It is the least advanced case however which presents the greatest difficulty in diagnosis The diffuse form shows such a close resemblance to the *diffuse lymphoid hyperplasia* before the fibrous deposition of fibro lymphoid hyperplasia occurs that microscopical diagnosis is sometimes exceedingly difficult It



FIGS 454 456
Diffuse Lymphoid Hyperplasia
Microscopy at operation (× 110)

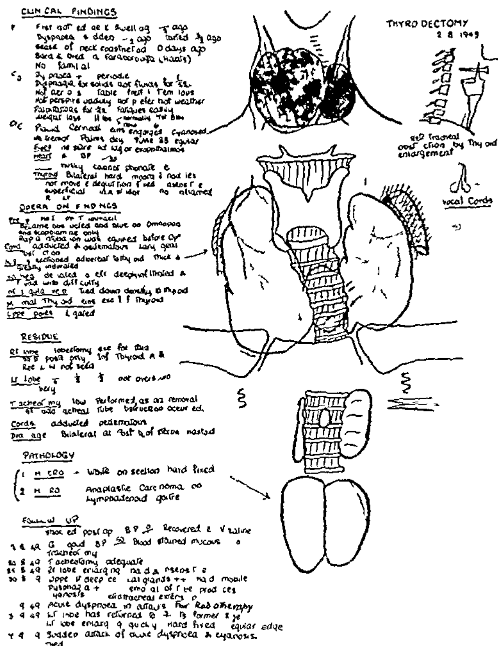
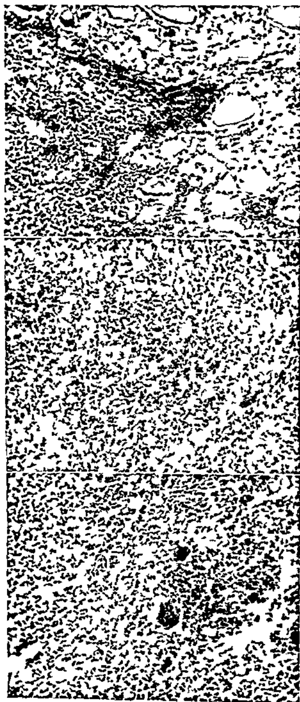
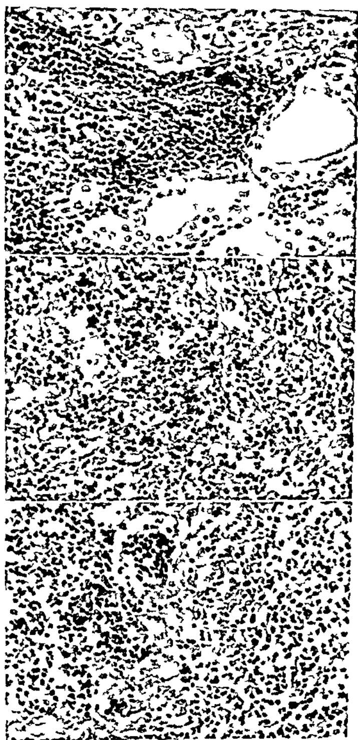


Fig 453

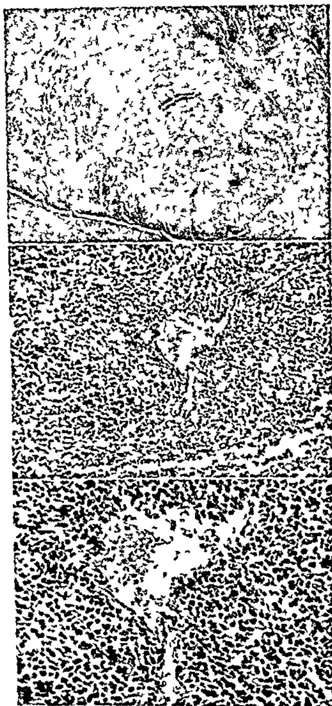
A Case History of Anaplastic Carcinoma superimposed on a Diffuse Lymphoid Hyperplasia of the Thyroid



Figs 454 456
Diffuse Lymphoid Hyperplasia
Microscopy at operation (× 110)



FIGS 457 459
Diffuse Lymphoid Hyperplasia
Microscopy at operation (× 250)



FIGS 460 462

Anaplastic Carcinoma in Lymphoid Hyperplasia of the Thyroid
Autopsy findings Fig 460 (×20) Fig 461 (×110) Fig 462 (× 50) Embolic spread through the blood supply



FIGS 457 459
Diffuse Lymphoid Hyperplasia
Microscopy at operation (×250)

All stages in the natural history of the toxic thyroid gland may become involved by malignant change The more epithelial the gland the more frequently is the malignancy microscopic and therefore occult As the lymphoid phases increase in intensity so does the difficulty of differentiating this lymphoid hyper plasia *from the anaplastic small round cell carcinoma and the rare diffuse small* cell lympho sarcoma

Excessive fibrosis increases the problem of distinguishing between Riedel s fibrosis and epidermoid carcinoma making it difficult to find the characteristic squames in the latter condition

If any doubt whatever does exist the case should be treated as that of a malig nant tumour and radical measures must be undertaken To await further evidence of malignancy such as the appearance of lymph nodes is to court disaster This is exemplified by figure 463 in which the gland gave all the clinical appearances of a benign colloid adenoma On section after excision the diagnosis of malig nancy was made by microscopy

All further reference to the vast and important subject of malignant disease of the thyroid has been made in the second volume

REFERENCES

Bather R Franks W R (1952) *Cancer Res* 12 245
Berlin D D Cargill S L (1947) *Trans Amer Ass Goiter* p 51
Bielchowsky F Griesbach W E Hall W H Kennedy T H Purves H D (1949) *Brit J Cancer* 3 541
Bielchowsky F (1944) *Brit J exp Path* 25 1
Black B M (1948) *West J Surg* 56 134
Broders R H (1929) *Virginia med (Semi) Mon* 56 453
Clute H M Warren Shields (1935) *Surg Gynec Obst* 60 861
Cole W H Majarakis J D Slaughter O P (1949) *J clin Endocrin* 9 1007
Coller F A (19 9) *J Amer med Ass* 92 457
Crile G Jr Hazard J B Dinsmore R S (1948) *J clin Endocrin* 8 762
Dunhill T P (1931) *Brit J Surg* 19 83
Friedell M T (1941) *Arch Surg Chicago* 43 381
Furth J Burnett W T Jun Gadsden E L (1953) *Cancer Res* 13 298
Graham A (1929) *Amer J Surg* 7 163
Goetsch E (1943) *Ann Surg* 118 843
Griesbach W E Kennedy T H Purves H D (1945) *Brit J exp Path* 26 18
Gudernatch J F (1912 13) *Arch Entw Mech Org* 35 457
Hellwig C A (1935) *Amer J Cancer* 23 550
Herbst W P (19_4) *Ann Surg* 79 488
Hermann E (1951) *Schwei med Wschr* 81 1097
Hitzig T (1894) *Arch klin Chir* 47 464
Levitt T (195?) *Ann roy Coll Surg* 10 ₃69
Levitt T (1953) *Malignant Disease of the Thyroid Gland* In the press
Means R H (1937) The Thyroid Gland and its Diseases p 482 J B Lippincott Co Philadelphia
Money W L Rawson R W (1947) *Trans Amer Ass Goiter* p 171
Pemberton J de J (19?8) *Ann Surg* 87 369
Pemberton J de J (1939) *Surg Gynec Obstet* 69 417
Purves H D Griesbach W E (1947) *Brit J exp Path* 28 46
Ribbert H (1915) *Frankfurt Z Path* 18 55
Rienhoff W F (19 9) *Arch Surg Chicago* 19 986
Simpson W M (19 6) *Ann clin Med* 4 643
Virchow R (1863) in Henke and Lubarsch Handbuch der speziellen pathologischen Anatomie und Histologie 8 Julius Springer Berlin
Ward R (1944) *Surg* 16 783
Wegelin C (19_7) *Schwei med Wschr* 8 848
Wilson L B (1921) *Ann Surg* 74 129
Wolfler A (1883) *Arch klin Chir* 29 16

3 FIBROSIS AND MALIGNANCY

Riedel originally diagnosed the first two of his three cases as malignant The first thyroid was thought to be malignant by clinical assessment and during the operation The second was judged to be similarly involved In the light of his previous experiences Riedel however believed his third case to be inflammatory when he actually exposed the thyroid at operation

Reference to Appendix I (page 544) will confirm Riedel s concern with the possibility of a scirrhous carcinoma in the disease he described He also quoted as an illustration the scirrhous carcinoma of the stomach where only fibrous tissue is found in the majority of the sections



FIG 463
Malignant Degeneration in an Adenoma

Squamous epidermoid carcinoma is a solid extremely lethal and swiftly progressive growth interspersed with much fibrous tissue which tends to obscure any original pattern The squamous cells or pavimentaux are *hidden from view* by these fibrous masses Epithelial pearls with acanthotic cells and intercellular bridges serve however to differentiate this rare tumour from the equally rare fibrosis of Riedel

Practical Applications

A biopsy must be performed whenever diagnosis is uncertain and malignancy is suspected Needle biopsies are very easy to perform but are just as easy to mis interpret *Only a small section of the gland may be malignant* If this growth arises on the postero medial aspect of the lobe it is usually not probed owing to danger of injury to the recurrent laryngeal nerve by a blind needle biopsy it may then easily escape early recognition

B M R which corroborate clinical diagnosis and assess changes in thyroid function They have inherent faults arising from absorption of exogenous iodine following bronchograms or cholecystograms Any iodine given within the previous six months can vitiate radioiodine investigation A period of one month after the administration of inorganic iodine usually suffices for most practical purposes before radioiodine tests are undertaken

Clinically there is very little difficulty in differentiating *the extreme degrees* of hyperthyroidism associated with the first two of the epithelio lymphoid phases from the relatively severe hypothyroidism observed in advanced diffuse lymphoid hyperplasia and fibro lymphoid hyperplasia

The *intermediate phases* the late focal lymphoid and the early diffuse lymphoid hyperplasia present the chief difficulty simulating a relatively *euthyroid* state They are associated with enlarged thyroids having characteristic features already described which may be mistaken for those of colloid goitre

The border line patient with evidence of mental instability may resemble a case of mild thyrotoxicosis

True hyperthyroidism furthermore may be simulated by extrathyroidal hyper metabolism due to pituitary overactivity by Parkinsonism by phaeochromocytoma thyrotoxicosis factitia due to the administration of exogenous thyroid extract and also by compensated hypertensive cardiac disease In such instances radioactive iodine is very helpful when used in conjunction with the other available tests

RADIOIODINE TESTS OF THYROID HORMONE FORMATION AND FUNCTION

The six stages of thyroid hormone formation and function (page 7) can be studied by appropriate radioiodine tests The work of Rollman Petit and Starr (1952) on the I^{131} levels in the plasma is of some moment They have correlated thyroid function with radioiodine tests The following is modified from their conclusions —

TABLE XXXVII

CORRELATION OF THYROID FUNCTION WITH RADIOIODINE TESTS

Function of Thyroid	*Radioiodine Test*
1 Absorption of iodine by the thyroid (epithelial hyperplasia)	Thyroid uptake gradient 24 hour uptake
2 Storage of formed thyroid hormone	24 hour uptake followed by thiocyanate or iodine
3 Secretion of thyroid hormone	Protein bound radioiodine appearance rate and amount in plasma
4 Utilisation of thyroid hormone	Protein bound radioiodine disappearance rate from the plasma
5 Retention of iodine by the body	Renal radioiodine excretion
6 Absorption to and loss from the blood	Plasma radioiodine levels

CHAPTER XXVII

THE SCOPE OF RADIOIODINE IN THYROID DISEASE

RATIONALE

By its unique property of concentrating iodine to a remarkable degree the thyroid has during the past decade forcibly attracted the attention of most of the specialists in radioisotope work and its many ancillary branches Using this gland as a vehicle for research in the function of the isotopes they have at the same time advanced the study of thyroid disease by shedding much light on the many hitherto unsolved problems of thyroid function

It becomes manifest that the radioactivated iodine ingested by the patient undergoes the same changes and fate as that of the iodine in the synthesis of the thyroid hormone illustrated in figure 4 Normally the iodine is absorbed stored and bound to tyrosine by the thyroid gland The process is continued by the synthesis utilisation and elimination of the thyroid hormone

Just as all the intimate movements of the glow worm during the summer night are faithfully recorded by its phosphorescent light so the intricate path of the iodine identifiable by its radioactive element can be followed throughout the body

Tracer doses of radioiodine 10 to 100 microcuries of the isotope I^{131} added as a label to its carrier 20 μ g of sodium iodide are ingested and absorbed by the patient The pick up or collection and storage of iodine in the thyroid is recorded for 24 to 48 or 72 hours by means of the directional Geiger Muller counter The synthesis of radiothyroxine can thus be followed as well as the concentration of iodine in the extrathyroidal spaces Finally the extent of elimination of the labelled iodine in the urine can be assessed by the urinary excretion curves and that in the faeces which is negligible can be just as faithfully estimated

The efficacy of this technique can easily be tested by observing histological sections of thyroid glands removed at operation from patients who have been given a standard oral dose of radioiodine 24 hours prior to the operation The slices of thyroid sections are fixed with alcohol mounted on slides and exposed to a photographic film Areas which absorb the iodine appear dark compared with the translucent picture in sites with minimal absorption of iodine (Fig 465) The form function and fate of the true as well as the false adenomata of the thyroid and of malignant transformation can similarly be recorded

These radioactive readings valuable as they are should never be substituted for clinical assessment of a patient They may be confirmed by the many ancillary tests such as that of a protein bound iodine in the plasma serum cholesterol and

2 Thyroid Clearance (Plasma Iodide Clearance)

The thyroid clearance measures the rate at which the radioiodine is cleared by the thyroid gland being comparable with the renal clearance of urea It is defined as the volume of plasma cleared of radioiodine by the thyroid per minute

The thyroid clearance is the volume of plasma which contains the amount of iodine absorbed by the thyroid in one minute it is therefore the volume of plasma in ml which is virtually totally cleared of radioiodine by the thyroid in one minute

(a) The *thyroid uptake rate* is obtained by the Geiger counter during the first hour after oral administration of 30 μ C radioiodine Small amounts such as 10 μ C can be used by adopting a double counter technique as shown by Tait (1951) (Fig 466)

(b) The *plasma concentration* of radioiodine is recorded by a simultaneous blood sample being estimated as a percentage of administered radioiodine per litre

(c) The *thyroid clearance rate* expresses the rate of the thyroid uptake of radioiodine in relation to the plasma radioiodine concentration given in ml per minute (Fig 464)

I am indebted to J E Roberts (1951) for collating the following results —

TABLE XXXVIII

THYROID CLEARANCE IN THYROID DISEASE

		Thyroid Clearance ml /min	
		Range of Values	*Mean*
Hyperthyroidism	Pochin (1949)	198 1 390	486
	Myant (1950)	84 350	240
	MacGregor (1950)	30 560	163
Non toxic goitre	Pochin	28 100	62
	MacGregor	15 59	32
	Myant	7 42	25
Normal	Myant	9 37	25
	MacGregor	15 37	19
	Pochin	9 38	16
Hypothyroidism	MacGregor	0 4 34	13

The Neck Thigh (N/T) Ratio

The neck thigh clearance rate established by Pochin (1950) is an easier more practical test and better adapted for routine use It is obtained by comparing simultaneous counts over the neck and thigh one hour after administration of the 30 μ C radioiodine The thigh count over a neutral part of the body corresponds to the plasma concentration in the thyroid clearance test The neck thigh test parallels the thyroid clearance test being the ratio of the uptake in the neck to that in the thigh expressed as neck counts per hour

Various tests have been devised to illustrate the role of radioiodine in thyroid hormone formation function and fate This can be studied in two ways direct and indirect The *indirect* methods aim at measuring the uptake of radioiodine by the thyroid gland and subsequent urinary excretion The *direct* method the thyroid clearance rate correlates the clearance of radioiodine into the gland with its simultaneous level in the plasma In all instances an estimate of the rate of appearance or disappearance of the radioiodine is more important than that of its actual amount

1 Thyroid Uptake

The iodide uptake gives the degree of epithelial hyperplasia whether hypo or hyper functioning Thus goitrogenic myxoedema as adjudged by the thyroid uptake tests alone may simulate a severe degree of thyrotoxicosis It is measured 24 hours after oral ingestion of 30 μ C of radioiodine and indicates (page 476) the total amount of iodide absorbed by the thyroid gland (Fig 464)

The greatest concentration occurs in the diffuse epithelial hyperplasia of Graves being less in local toxic adenomata or nodular post operative recurrences in spite of a clinical toxicity equal to that of Graves s The greatest use of this test however is in the diagnosis of hyperthyroidism notwithstanding occasional overlap *with the euthyroid state*

The diagnostic values at 24 hours are as follows —

1	Hypothyroid	less than 15 per cent
2	Euthyroid	15 to 40 per cent
3	Hyperthyroid	above 50 per cent

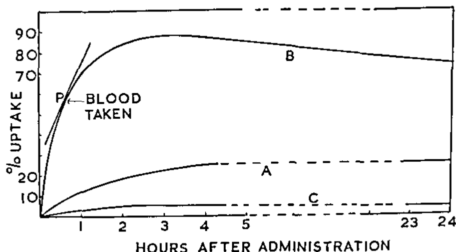


FIG 464

Thyroid Uptake of Radioiodine

A Normal subject (mean curve)
B Thyrotoxicosis
Uptake rate at P = 1 08 per cent /min
Plasma conc at P = 0 0038 per cent /ml
Plasma clearance 285 ml /min
C Hypothyroidism (mean curve)

(Roberts J E Arch Middx Hosp clin Ser)

4 Renal Excretion

The excretion of radioiodine from the kidney occurs in inverse ratio to its uptake in the thyroid The simplest of all radioiodine tests it has however certain disadvantages The collection at intervals of 8 24 and 48 hours of three urine samples containing radioiodine may sometimes be unreliable in females An overlap occurs in thyrotoxic and normal patients affording less help in diagnosis of the difficult borderline case Sources of error arise owing to renal disease and congestive heart failure As Goodwin (1951) points out a high urinary excretion with a high B M R excludes thyrotoxicosis The test is of value for the exclusion of Parkinsonism phaeochromocytoma alcoholism and thyrotoxicosis artifacta This urinary excretion test moreover has the least radiation hazard as it requires 10 μ C doses of I^{131} in contrast with the 15 to 30 μ C needed for the other tests

The values are —

1	Hypothyroid	75 to 95 per cent.
2	Euthyroid	60 to 80 per cent.
3	Hyperthyroid	less than 30 per cent

ANCILLARY RADIOIODINE TESTS

Topographical Survey

(1) *Geiger Muller Counter*

Tracer doses of the isotope (100 μ C of I^{131} with 100 μ g of sodium iodide as a carrier) given to these patients will be concentrated in the most active parts of the thyroid gland The concentration can be scanned in different parts of the gland by the directional Geiger Muller counter The isotope in the blood and in the urine recorded at the same time affords a valuable index of the inter change of iodine in the rest of the body It has proved invaluable in the diagnosis of impalpable thyroid masses and retrosternal prolongations Furthermore the diagnosis of ectopic rests in the thyroglossal track in the juxtathyroid areas as well as of distant pelvic ovarian rests has been rendered much simpler The detection of non functioning malignant and non malignant encroachments on the active thyroid gland as well as of active well-differentiated metastatic growths in relatively inaccessible areas has been facilitated (Fig 466)

(2) *Scintillation Counter*

The scintillation counter promises to replace the less sensitive Geiger Muller counter According to Allen and his co workers (1952) this specially designed gamma-detecting apparatus not only provides a quantitative evaluation of the size and shape of the isotope-concentrating thyroid tissue by means of a topographical survey but also gives a functional estimate of different parts of the normal and the diseased thyroid gland Using the principle of a camera it is possible to photograph" or gammagraph any gamma-emitting isotope-concentrating tissue in the thyroid It is claimed to determine the weight of the thyroid gland with a 90 per cent. accuracy

The Thigh-Neck (T/N) Clearance

This test was evolved by Foote and Maclagan in 1952 It is done at the moment of the maximal thigh count Giving the maximal extrathyroidal tissue count it eliminates the confusion between the thyroid uptake rate and the neck tissue rate At low levels of thyroid activity the count from the extrathyroidal neck tissues is large compared with the thyroid count

This thigh neck clearance ratio while losing some of the accuracy of the plasma iodide clearance and neck thigh ratio for the upper intake level is more satisfactory at the lower end of normal and all the hypothyroid levels of uptake

A high degree of correlation has been shown between the thigh neck clearance rate and the B M R in untreated patients over the range of thyroid activity from myxoedema to thyrotoxicosis

The T/N clearance values noted are —

1	Myxoedema	0 to 0 8
2	Normal	1 to 9
3	Hyperthyroidism	21 to 108

Goodwin and his co workers (1951) observed that toxic adenomata had lower clearance rates than diffuse epithelial hyperplasia They ascribed this to the masking effect produced by the rest of the normal gland on the localised toxic adenoma

3 Plasma Radioiodine Level

The plasma level of activity measures both the protein bound iodine (an index of thyroid hormone content in the blood) and the non protein bound fraction It is estimated from blood samples 48 hours after oral administration of 30 μ C radio iodine The rate of disappearance of radioiodine from the blood is far more rapid in thyrotoxicosis than in hypothyroidism The appearance of protein bound iodine in the plasma synchronises with the secretion of the thyroid hormone into the blood It reaches the highest value in thyrotoxicosis and the lowest in hypo thyroidism

McConahey Keating and Power (1949) found that all the circulating radio active iodine became protein bound in the thyrotoxic patient after a period of 47 hours as contrasted with four days taken by the normal individual a swift turn over of radioiodine into protein bound iodine occurs in the thyrotoxic patient coinciding with a rapid fall in the thyroid gland uptake after a peak value has been reached This becomes associated with a corresponding rise in the protein bound iodine caused by the formation of thyroxine

This valuable test has the great advantage of giving minimal inconvenience to the ambulant patient

Corticotropin A C T H labelled with I^{131} has been shown to accumulate selectively in the adrenal cortex

Gonadotropin Radioactive prolactin has been selectively identified in the corpora lutea

Insulin The selective action of the pituitary hormone on the pancreas has been similarly investigated by labelling it with diazotized p iodo aniline

A deeper insight into the myriads of co ordinated interactions between the thyroid and the remainder of the endocrine system are being afforded to us every day

THE ROLE OF RADIOIODINE IN THE EPITHELIO LYMPHOID PHASES

Effects in Animals

The later of the six phases described in epithelio lympho fibrosis progression find a crude but interesting mirror in the degenerative changes occurring in the thyroids of rabbits and dogs subjected to very large doses of the isotope I^{131} probably a thousand times the normal tracer dose so intensive is the reaction to radioiodine

Rabbits as described by Soley and his associates (1948) show an extensive necrosis of the thyroid with haemorrhage and arterial changes by the tenth day after radioiodine treatment Lymphocytic infiltration with healing vascular changes and fibrosis are recorded by the twentieth day By the fortieth day fibrosis has become the dominant feature and the size of the thyroid has diminished by half The arteries show thickened walls with intimal and medial fibrosis A few degenerated acini remain Similar changes occur in dogs the thyroid being completely destroyed by the hundredth day

The changes in the rat (Boyd 1953) are illustrated in figures 464 (i) and (ii) which demonstrate the integrity of the parathyroid following irradiation with radioiodine in spite of complete ablation of the surrounding thyroid gland

CHANGES IN THE FOETAL THYROID

The relation of pregnancy to thyrotoxicosis assumes practical importance when it is appreciated that the former is occasionally conducive to the latter Treatment of the mother by radioiodine if not harmful to the parent s thyroid may adversely affect the thyroid of the foetus

Tracer doses of radioiodine were given to pregnant women 12 to 48 hours before undergoing abortion for serious organic disease Three months old foetu es examined both histologically and for radioactivity showed no uptake of the isotope With differentiation of the thyroid follicles and consequent colloid formation uptake was proved after the fourteenth week To give a pregnant woman large doses of radioiodine after the fourteenth week may impair or endanger the thyroid of the foetus

Furthermore the radioiodine has been found in the milk of nursing mothers Where a mother is undergoing internal irradiation the danger to the suckling child is obvious

Previously used for estimating the weight of the diffuse hyperplastic thyroid gland it has been developed as a means of assessing the various degrees of radio iodine activity in the diseased thyroid gland including the nodular toxic goitre *solitary adenomata and ectopic rests (Fig 465)* General use and experiment will place the value of this recent advance in radiodiagnosis in true perspective

Autoradiography

A tracer dose of 200 μ C of radioactive iodine (I^{131}) given to the patient the day before thyroidectomy will be concentrated in varying degrees in different parts of the section Thin slices of thyroid tissue are fixed in alcohol and are brought into close contact with a photographic film The latter is put on to a slide and left in intimate contact with it in the dark being ultimately developed photographically and fixed (Fig 465)

The blackening in the film and the detail in the section give a valuable estimate of the radioactive iodine uptake of the section of the thyroid These autoradiographs make an interesting study when used in conjunction with an examination of the histological changes within the gland

Radiochromatography

The combined use of radioactivity and chromatography has proved of great value in the study of thyroid metabolism By using the solvent butanol acetic acid in one dimension and butanol dioxan ammonia in the second Gross and Pitt Rivers (1952) isolated the second thyroid hormone triiodothyronine It was found to occupy a spot removed from that of thyroxine which was in turn distant from di and monoiodotyrosine the latter occupying contiguous areas in contrast with their derivatives thyroxine and triiodothyronine which were found to be isolated entities

THE TROPIC HORMONES OF THE PITUITARY GLAND

Radioiodine research has shed much light not only on the formation of the thyroid hormone but also on its action on the higher cerebral centres By means of the selective accumulation of radiothyroxine in the pituitary and the hypo thalamus it has been possible to advance endocrine investigation and to trace it to its very source the higher cerebral centres

The tropic hormones of the anterior pituitary to the thyroid adrenals and gonads as well as to the pancreas have been similarly investigated chiefly by Sonnenberg and co workers (1952)

Thyrotropin The generalised distribution and rate of metabolism has been found to vary in health and disease These results appear to bear a close relation ship to those obtained from autoradiography biological assays as well as chromato graphy A high radioaccumulation of this pituitary hormone labelled with S^{35} has been found not only *in the thyroid but also in the liver skeletal muscle* and to a lesser extent in the retro ocular tissue

Concentration of thyrotropin also occurs in the gonads and adrenals as well as in the thyroid gland A study of curves of disappearance from these organs gives a rough *estimate of the* destruction of labelled tropic hormone

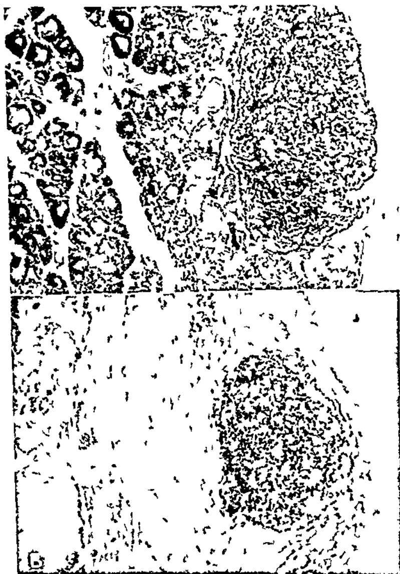


FIG 464 (ii)

Preservation of Integrity of Parathyroid Gland following Irradiation of the Thyroid by I

A The normal thyroid and parathyroid of the rat is seen B The parathyroid is still intact after irradiation with I in spite of extensive fibrosis of the thyroid gland

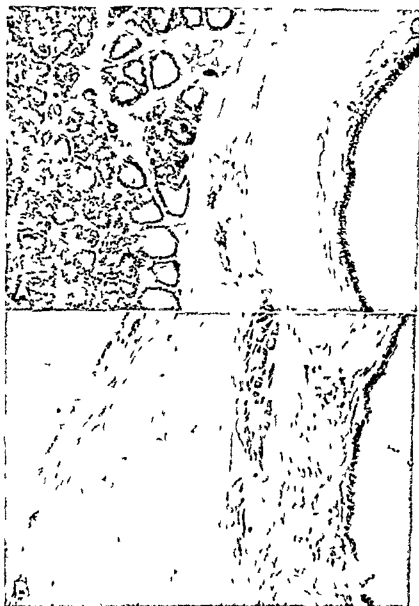


FIG 464 (i)

The Effect of Radioactive Iodine on the Thyroid of the Rat

A The normal thyroid B The extensive fibrosis in the rat three months after irradiation with I

Epithelial Tissue

The most active fully functioning epithelial cell records the highest concentration of iodine uptake The least active cell shows no concentration of iodine at all Intermediate between these are the various stages of epithelial degeneration encountered in the progressive phases of degeneration of the toxic epithelial hyperplastic gland

The controversy which has centred around the role and fate of the Hurthle cell (page 170) the micro follicular macro cellular entity appears nearer resolution Seen in all the phases of the degenerating toxic thyroid gland but especially in that of the later stage of diffuse lymphoid and fibro lymphoid hyperplasia these large pale eosinophilic cells show either a faint ghost like outline or do not accept iodine at all Their designation as myxoedema cells appears to be adequately confirmed Scattered among the various lymphorrhages and lymphoid follicles are parts of the degenerated epithelial acini This is specially evident in the later stages of diffuse lymphoid hyperplasia and in fibro lymphoid hyperplasia when the degenerated cells are more insensitive to the radioiodine

While parts of the autoradiographs show no uptake at all others are relatively active Comparison with the histological sections confirms the view that these active areas may be interspersed as epithelial islands between the lymphoid masses and be responsible for those flares of toxicity which occasionally occur in later degenerating lymphoid phases

Lymphoid Tissue

Lymphoid tissue disposed either as perivascular lymphorrhages discrete lymphoid follicles or a diffuse infiltration shows no radioactive iodine uptake Slight darkening may be seen in the autoradiographs where there are islands of degenerating epithelial cells and colloid masses enclosed by the lymphoid deposition The avidity of these enclosed epithelial islands for the radioiodine diminishes *pari passu* with the increase of the lymphoid tissue and their associated degeneration and atrophy

Fibrous Tissue

The increasing incidence of fibrous trabeculations and interacinar fibrous tissue seen in the fibro lymphoid phase and considerably intensified in the rare phase of fibrosis appears to be associated with a minimal uptake of radioiodine Sufficient instances of such rare cases of final fibrosis have not as yet been investigated for any precise observations to be offered

Conclusions

Radioiodine studies of epithelial hyperplasia lymphoid hyperplasia and the ultimate phase of fibrosis have not been sufficiently advanced to warrant any definitive conclusion My own impression obtained from a study of the epithelio lymphoid phases is that the most toxic epithelial and lympho epithelial hyperplasia show the highest uptake of radioiodine and the least urinary excretion The

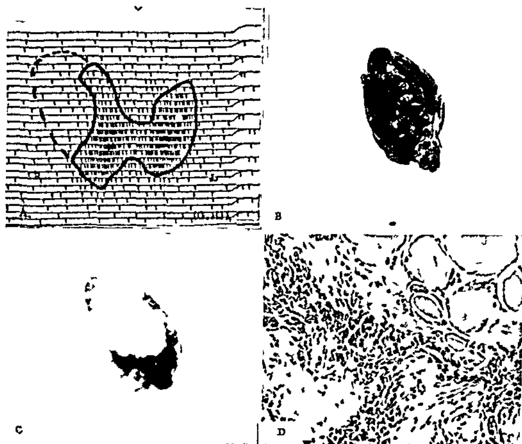


FIG 465
Solitary Malignant Nodule in the Right Lobe of the Thyroid Gland
A Anterior gammagram B Photograph of right lobe removed at operation C Radio autograph of the cross section of the right lobe seen in B D Photomicrograph of the malignant growth showing the adjacent normal thyroid tissue
(Allen Kelly Greene J clin Endocrin)

DISTRIBUTION OF RADIOIODINE IN THE SIX PROGRESSIVE PHASES

The efficacy of the radioactive iodine treatment depends upon the ability of the epithelial cells of the acinus to concentrate the absorbed iodine The high speed electrons liberated by the radioactive iodine interact with the epithelial cells initiating and continuing their deterioration and destruction This disrupts the acinus the central unit of the active thyroid gland culminating in a sudden loss of toxicity In its earlier stages it may stimulate the epithelial cells to a transient burst of activity and toxicity

Just as the deterioration and degeneration of the epithelial cells have been seen to differ in degree in the various sections of the gland so their receptivity to the iodine and therefore to the radioactive element varies

TABLE XXXIX

RADIOIODINE READINGS FOR ACUTE DIFFUSE THYROIDITIS STRUMA LYMPHOMATOSA STRUMA FIBROSA AND FOR NORMAL SUBJECTS

Condition	*No of cases*	*24 hour thyroidal accumulation per cent of dose*		*No of cases*	*48 hour urinary excretion per cent of dose*		*Extrarenal disposal rate per cent per hour*		*Renal excretion rate per cent per hour*	
		Range	*Mean*		*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*
Acute diffuse thyroiditis	13	0 –18 3	3 0±1 5	21	64 3–93 4	83 7±2 3	0 2–3 9	1 4±0 2	3 5–13 2	8 0±0 5
Struma lymphomatosa	9	0 –36 7	18 5±4 5	13	38 8–84 9	62 8±3 9	1 1–6 7	4 1±0 7	2 9– 7 7	6 2±0 5
Struma fibrosa	3†	11 0–2 39	18 1±3 8	6	47 3–91 1	75 9±6 8	0 8–2 4	1 8±0 3	2 7– 9 6	7 1±1 0
Normal subjects	98	6 0–45 0	24 7±1 2	157	450 0–82 0	63 5±0 8	1 3–7 6	3 9±0 1	4 0–10 0	6 7±0 2

The value following ± is the standard error of the mean
† In 2 of these 3 cases the thyroidal accumulation was measured at forty eight hours

(*McConahey and Keating*)

more intermediate and relatively euthyroid phases of focal and diffuse hyperplasia show values which vary within the normal range This I was surprised to find also occurred in the few instances of late diffuse lymphoid hyperplasia In contrast acute thyroiditis showed a lowered thyroid uptake and an increased urinary excre tion *indicating an impaired thyroidal accumulation The impression is sustained* that the value of radioiodine as a diagnostic measure may in the light of present knowledge be vitiated in the later lymphoid phases

The work of McConahey and Keating (1951) may be cited in support of the foregoing observations Their radioiodine readings for acute diffuse thyroiditis struma lymphomatosa and struma fibrosa compared with readings of control subjects are given in table XXXIX

Struma lymphomatosa as recorded by them appears to agree with my concept of focal and diffuse lymphoid hyperplasia The condition designated as struma fibrosa is probably an advanced stage of fibro lymphoid hyperplasia

LIMITATIONS IN THE VALUE OF DIAGNOSIS FROM RADIOIODINE TESTS

Autoradiographs The deposition in consecutive order of epithelial lymphoid and fibrous tissue during the progressive course of the phases initially appears to be focal later to become diffuse in distribution Many varied patterns forming a veritable mosaic of thyroid histology may thus occur simultaneously in the same gland of the same patient It is only by a study of the gland as a whole supported by enough representative sections that a critical assessment can be made of the dominant phase of the process To rely only on a needle biopsy or a localised and limited resection for scientific evidence of the predominant phase of the gland is as fallacious as assessing the form and function of the rest of the gland merely by examining an excised part of a pyramidal lobe

Geographical variations Normal radioiodine figures may vary in different localities In geographical areas with iodine deficiency the range of hypothyroid values may approach those obtained from normal individuals elsewhere

Previous Therapy

Thiouracil treatment when prolonged or intensive may produce the well recognised goitrogen withdrawal effect Raised radioiodine uptake in such cases probably due to iodine lack may persist for up to two years Reliance should then be placed *on other tests available* and subsequent retesting after a three or six months interval

Thyroid medication depresses the normal uptake of a previously euthyroid individual *It does not increase minimal radioiodine* uptake of true myxoedema In thyrotoxicosis artifacta following prolonged secret administration of thyroid extract the clinical features of severe thyrotoxicosis are associated with a high basal metabolic rate but with a *low radioiodine* uptake

Thyrotropin in Diagnosis by Radioiodine

The latent sensitivity of the epithelial cell in acute thyroiditis to exogenous thyrotropin was illustrated by Robbins and his co-workers (1951). Intramuscular injections of thyrotropin in doses of 25 to 150 mg. over a one to five-day period were given. The characteristically low radioiodine uptake was appreciably raised to a level just below normal. Clinical symptoms and signs improved. The combined effects relapsed, however, when the thyrotropin injections were discontinued. Full recovery eventually occurred but resolution was slow. *Secondary myxoedema* due to pituitary failure shows a positive reaction to thyrotropin; *primary myxoedema* due to intrinsic thyroid failure, by contrast, is unaffected by thyrotropin injection.

APPLICATION OF RADIOIODINE TO THE PATHOGENESIS OF GOITRE

Recent work by Werner *et al.* (1952) illustrates the importance of radioactive iodine research in the study of the pathogenesis of hyperthyroidism. In a combined radioiodine, biochemical and clinical survey they observed the effect of exogenous thyrotropin and thyroid extract on the following three groups of patients :—

1. Normal patients.
2. Patients with active Graves's disease.
3. Patients with inactive Graves's disease following radioiodine therapy.

Their findings may be summarised :—

TABLE XL

EFFECT OF THYROTROPIN AND THYROID EXTRACTS

Agent	*Tests*	*Normal*	*Graves's (Inactive)*	*Graves's (Active)*
1. *Thyrotropin*	R.A.I. P.B.I.	Increased uptake Increased output	No response or rise	No response Slight rise
2. *Thyroid extract*	R.A.I. P.B.I.	Depressed uptake Increased or no response	Depression Rise	Rise or no response Rise

Conclusions

Thyrotropin caused an increased release of thyroid hormone but no increase of biosynthesis in the toxic gland. The thyroid did not appear to be maximally stimulated by thyrotropin in Graves's disease. A non-pituitary agent appeared to stimulate the thyroid in this condition, the pituitary being incompletely inhibited by the thyroid hormone. The nature of this agent remains to be determined.

Triiodothyronine in large daily doses of 2 mg., which equal 8 mg. of thyroxine and 2.4 gm. of desiccated thyroid, were found by Werner and Hamilton (1953) to be insufficient to depress the pituitary significantly, although severe exacerbations were produced in patients with Graves's thyrotoxicosis.

It could be argued that either insufficient thyroid hormone was given to suppress the pituitary, or that this gland was unable to respond to the thyroid hormone.

The urinary excretion test proved valuable in the hands of Skanse and Riggs (1948) who were confronted with suspected thyrotoxic patients whose B M R readings and serum precipitable iodines were greatly elevated They found that the patients thyroids did not concentrate radioiodine and that more than 97 per cent of the labelled iodine was excreted in the urine A confident diagnosis of thyrotoxicosis artifacta could be made

Iodide deficiency follows both thyroidectomy which removes the main iodine storage reservoir and also a protracted course of thiouracil Fraser (1953) has stressed that a year may be required on an ordinary diet to replace the defect *Resorcinol* used for leg ulcers produces high thyroid uptakes which persist till the iodine deficiency has been corrected He has suggested retesting after a standard KI load which tends to restore thyroid uptake into the normal range It however leaves the patient s uptake index still in the abnormal range

Such a test would permit thyrotoxicosis to be assessed with radioiodine after periods of prolonged goitrogen treatment and should also prove useful when a thyroid uptake is found to be unexpectedly high

Exogenous iodine especially in large amounts vitiates the results The effect may persist for up to a year after a cholecystogram bronchogram or salpingogram or up to five years after lipiodol injection into the spinal theca The simulated thyroid failure demands a confirmatory radioiodine test after a three or twelve monthly interval

Pathological conditions Circulatory insufficiency due to congestive heart failure and renal dysfunction affect the circulation and excretion of the radioiodine

The *' all or none' law in hypothyroidism* A correlation between the all or none law and the minimally active thyroid gland has been suggested by Johnston *et al* (1951) They postulated that in the lower ranges of secretion the thyroid secretes normal amounts of hormone or none at all Foote (1952) found that in all cases of suspected hypothyroidism investigated by the neck thigh clearance test the readings were either normal or zero These findings serve to explain in part the values obtained by McConahey and Keating (1951) for struma lymphomatosa and struma fibrosa

In *acute diffuse thyroiditis* the patients were clinically euthyroid and in some instances hyperthyroid yet the thyroid uptake of radioiodine was below and the renal excretion above normal

In *struma lymphomatosa '* the clinically myxoedematous patients showed a normal thyroid uptake and renal excretion of radioiodine

In *struma fibrosa* or chronic thyroiditis the patients did not appear to be myxoedematous prior to operation and their radioiodine values were within normal limits

Goitrous cretins give radioiodine results similar to those seen in chronic thyroiditis As shown by Stanbury and Hedge (1950) these cretins are able to accumulate the I^{131} in their thyroids where its subsequent conversion into protein bound iodine is incomplete

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DISSOCIATION BETWEEN EPITHELIAL HYPERPLASIA AND THYROID HORMONE FORMATION

Surgical or radioiodine ablation of the thyroid may be followed by a sustained clinical remission paradoxically accompanied by an abnormally high iodine concentrating activity of the thyroid gland By contrast a patient who has become hypothyroid after operation while maintaining her clinical state may exhibit a rebound phenomenon when the radioiodine and B M R readings return to normal

Myant (1953) has shown that the greatest inhibition of thyroid uptake occurs three weeks after radioiodine therapy when all the cells that will ultimately die have received their lethal radiation dose He ascribes the wide range of response to three possible factors —

(1) Uneven distribution of the dose

(2) Variation of radiosensitivity of the thyroid cells

(3) Temporary inhibition of intrathyroidal enzymes responsible for the con centration of iodine

I would suggest that this apparent dissociation of thyroid growth and function is due to unequal and incoordinated production of the thyroprolifern and thyro secretin components of thyrotropin (page 31) Thyroprolifern stimulates epithelial hyperplasia of the thyroid and therefore increases the iodide uptake by the gland Thyrosecretin the metabolic stimulant is a logical follower of thyroprolifern and appears to be responsible for the production of thyroid hormone which is assessed by the plasma radioiodine level in the blood

Clinical observations now amply supported by radioiodine studies emphasize this dissociation between hyperplasia and function of the thyroid gland

THE RADIOTHYROXINE CYCLE

By labelling thyroxine with radioiodine and injecting it intravenously into thyrotoxic patients Benua and his co workers (1952) traced the function and fate *of the thyroid hormone*

(1) *An initial rapid phase of disappearance* from the blood with a half value time of three hours is associated with a diffusion of the thyroxine into the extrathyroidal body fluid spaces and its concentration in the liver and the gastro intestinal tract (page 9)

(2) *A secondary slow phase* with a half value time of five to six days denotes the utilisation of thyroxine by the tissues and its excretion into the urine and the faeces *The amount of thyroxine which is excreted is proportional to the* thyroidal and urinary clearance rates The residual thyroxine is then de iodinated presumably to triiodothyronine The liberated iodide in turn becomes accumu lated in the thyroid where it combines with the amino acid tyrosine anew to form thyroxine

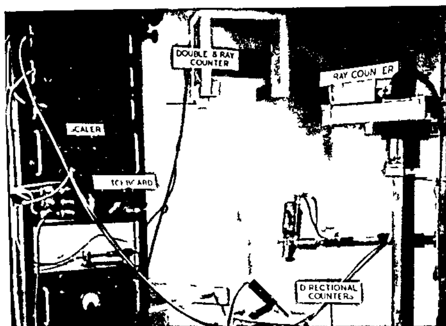


FIG 466
Counting Equipment for Clinical in vivo Measurements
(Roberts J E Arch Middx Hosp clin Ser)

REFERENCES

Allen H C Jun Kelly J K Greene J A (195) *J clin Endocrin* **12**
Benua R S Albert A Keating F R Jun (195.) *J clin Endocrin* **12** 1461
Boyd D (1953) Mode of Action of Thyroxine Thesis University of Oxford
Foote J B MacKenzie D H Maclagan N F (195?) *Lancet* **1** 486
Fraser R Hobson Q J G Arnott D G Emery E W (1953) *Quart J Med* New Sei **22** No 85 99
Goodwin J F MacGregor A G Miller H Wayne E J (1951) *Quart J Med* N Series XX 80 353
Gross J Pitt Rivers R (1952) *Lancet* **1** 439
Johnston W M Squires A H Farquharson R F (1951) *Ann intern Med* **35** 1008
Keating F R Jun Power M A Berkson J Haynes S F (1947) *J clin Invest* **26** 11
MacGregor A G (1950) *Brit J Radiol* **23** 550
McConahey W M Keating F R Power M H (1949) *J clin Invest* **28** 191
McConahey W M Keating, F R (1951) *J clin Invest* **11** 1116
Myant N B Pochin E E Goldie E H G (1949) *Clin Sci* **8** 109
Myant N B (1953) *Brit J Radiol* **26** 139
Pochin E E (1950) *Lancet* **2** 41 83
Roberts J E (1951) *Arch Middx Hosp clin Ser* **1** 219
Robbins J Ball J E Trunnell J B Rawson R W (1951) *J clin Endocrin* **11/10** 11
Rollman H Petit D W Starr P (1952) *J Lab clin Med* **39** 2
Skanse B N Riggs D S (1948) *J clin Endocrin* **8** 53?
Soley M H Miller E R Foreman N (1948) *Trans Amer Ass Goiter* **2** 113
Soley M H Miller E R Foreman N (1949) *J clin Endocrin* **9** 29
Sonnenberg M Keston S K Money W L Rawson R W (1952) *J clin Endocr* **12** 1.69
Stanbury J B Hedge A M (1950) *J clin Endocrin* **10** 1471
Tait J F Cook J R Worsnop B R (1951) *Brit J Radiol* **24** 14
Werner S C Hamilton H Nemeth M (1952) *J clin Endocrin* **12,** 1561
Werner S C Hamilton H (1953) *Lancet* **7** 796

CHAPTER XXVIII

TREATMENT

1 MEDICAL THERAPY

Indications

AT the *extremes of life*—the child and the aged who for various reasons are not suitable for surgery—thiouracil is indicated The *intermediate age group* with recurrent goitres may present operative difficulties especially where one recurrent laryngeal nerve has already been injured The temporary toxic flare of puberty pregnancy and menopause occasionally needs palliation with drug therapy

The *mentally unstable* with anxiety neurosis and a mild degree of thyro toxicosis the sterile soil in which surgical skill seldom prevails may be palliated by the anti thyroid drugs

As a *preparation for operation* thiouracil is undoubtedly a very useful measure for reducing to a euthyroid state the severely and even the moderately toxic patients of the earlier epithelio lymphoid phases This makes the patient fit for operation Subsequent iodine therapy for two weeks diminishes the vascular ity friability and many extraglandular adhesions of the thyroid rendering the gland fit for operation (Table XLIII pages 538 540)

Regime

Preparations Methyl thiouracil is most commonly used in England and propyl thiouracil in the United States An increasing number of derivatives such as imidazole are being tried with diminished incidence of side effects

Dosage The usual loading dose of methyl thiouracil is 0 5 g and the main tenance dose is 0 2 g per day

The loading dose must effectively reduce the toxicity till a euthyroid state is attained The maintenance dose must ensure the permanence of that control without inducing hypothyroidism and varies according to the individual

Pre operative iodine given orally as Lugol s iodine mm 5 t d s for the last two pre operative weeks diminishes the thiouracil induced vascularity and friability of the gland

The Response to Drugs

Toxicity of mild moderate and severe degrees takes on an average four five and six weeks respectively to control thiouracil does not neutralise thyroxine already formed but only inhibits its further synthesis and secretion of the thyroid hormone

The phases of lymphoid hyperplasia focal or diffuse react if they present a flare of toxicity due to regenerative epithelial hyperplasia Fibro lymphoid hyper plasia and fibrosis are usually of such mild degree of toxicity that treatment by anti thyroid drugs is unnecessary

Remissions are shorter following inadequate dosage or too short treatment

Refractoriness to one thiouracil compound such as the methyl derivative may be combated by using another such as propyl thiouracil

RATIONALE OF RECENT ADVANCES IN ANTI THYROID DRUG THERAPY

Chromatographic studies by Roche (1952) show that thyroxine is formed at an earlier stage and to a larger extent than triiodothyronine A seasonal variation occurs The amount of these two separate thyroid hormones *although apparently* retaining the same proportion becomes greatly diminished in the winter months The thyroid gland is then relatively poor in iodine which leaves the gland at a higher speed Anti thyroid drug treatment appears to undergo a similar seasonal relapse rate

B D H B (n butyl 3 5 diiodo-4 hydroxybenzoate) has been shown by Maclagan (1952) to be an effective thyroxine antagonist in animals Unlike thiouracil it is *not goitrogenic* While inhibiting the effects of thyroxine on metabolism B D H B simultaneously enhances the action of triiodothyronine It is possible that this drug competes with thyroxine in an enzyme *system and that the normal mode of* destruction of triiodothyronine by dehalogenation is restrained by the B D H B Maclagan s work would suggest that thyroxine is *deiodinated to triiodothyronine* in the peripheral tissues before becoming physiologically active

B D H B therefore interferes with the conversion *of thyroxine to triiodo* thyronine and probably prevents the peripheral destruction of triiodothyronine by inhibiting its dehalogenation These observations *have an important bearing on* the future discovery of anti thyroid drugs which would not be goitrogenic

Thyroxine thiouracil in combination *as advocated by R Fraser (1953) is a* practical application of anti thyroid treatment which in optimal dosage is reputed *to be non goitrogenic*

Neo mercazole synthesised by Lawson in 1951 can be given in doses of 15 30 and 45 mg for mild moderate and severe degrees of *thyrotoxicosis respectively* It is as effective as Mercazole (Tapazole) from which it is derived In that dosage it appears to have no toxic reactions and according to Doniach (1953) minimal goitrogenic effect Poate (1953) claims that it is superior to all thiouracil drugs not only in reducing thyrotoxicosis but also in diminishing pre operative vascularity of the gland

The Dangers

Nodular goitres or a single rare hard nodule in a thyroid gland with diffuse toxic epithelial hyperplasia emphasise the danger of thyrotropin excess following long continued thiouracil medication The sudden florid growth of malignant change is far too high a price to pay for omitting to remove a suspicious lump and to ascertain its nature

The chief dangers include —

1 *Toxic reactions* of which agranulocytosis may be lethal
2 *Pressure effects* especially in retrosternal or retrolaryngeal extensions
3 *Endocrine imbalance* in diabetes and pregnancy
4 *Thyrotropin crisis*
5 *Exophthalmos* goitre enlargement and myxoedema
6 *Possible malignant change*

AGRANULOCYTOSIS

This may be serious and the treatment needs very careful supervision Leucopenia of severe thyrotoxicosis may suddenly merge into agranulocytosis While the former *is relatively common the latter is a dreaded harbinger of death* The evolution from leucopenia into agranulocytosis is so dramatic and sudden that a constant and urgent watch must be maintained on any patient undergoing thiouracil therapy

The *warning signals* of this sudden transition are summarised below —

TABLE XLI

DIFFERENTIAL DIAGNOSIS BETWEEN LEUCOPENIA AND AGRANULOCYTOSIS

	Leucopenia	*Agranulocytosis*
Clinical Features	No symptoms	Prostration *Pharyngitis* Pyrexia Papulo macular rash
Blood Count	Total white cell count below 4 000 Granulocytes normal	Total white cell count below 4 000 Granulocytes greatly diminished in number or absent
Time of Onset	Concomitant occasionally with *severe hyperthyroidism*	First month of thiouracil treatment *about 50 of recorded cases* First two months of thiouracil treatment about 75 of recorded cases May occur even after a year s treatment
Incidence	4 8 in Williams series (1946) 4 4 in van Winkle s series (1946) 3 0 in Moore s series (1946)	2 5 in van Winkle s survey of 5 745 cases (1946) 1 8 in Moore s survey of over 1 000 cases (1946)

The patient must be strongly advised to discontinue treatment and to report at once for medical advice as soon as any untoward symptom occurs

Value of Blood Counts

Agranulocytosis may develop with such catastrophic rapidity that repeated blood counts are no adequate safeguard They either give a false sense of security or else produce unnecessary alarm

Role of Sternal Marrow Puncture

Sternal marrow examinations at the initiation of and during treatment provide a more precise guide than does the investigation of the peripheral blood The latter is but a late and crude reflection of the toxic effect on the bone marrow produced by thiouracil Although not always practicable as a routine procedure sternal marrow counts should always be done in impending agranulocytosis and during its treatment

Treatment

Immediate termination of the thiouracil treatment is imperative following the onset of pyrexia prostration pharyngitis or a maculo papular rash

Complete bed rest antibiotics pentnucleotide nutritious diet A C T H and cortisone aided if necessary by blood transfusions control the crisis The clinical condition daily white cell counts regulated by an occasional sternal marrow puncture afford useful indices of the degree of improvement

No sulpha drugs or chloramphenicol should be given

2 RADIOIODINE THERAPY

The impact of radioiodine on clinical medicine is still too recent for adequate statistical assessment Most of the opinions expressed in this section must therefore remain controversial until individual techniques are standardized and have become generally accepted Nevertheless radioiodine has established for itself an assured and increasingly valuable role in the diagnosis and treatment of the endocrine glands in general and the thyroid in particular

Its study requires a specialised centre equipped with extensive biophysical apparatus and staffed by personnel skilled in the ancillary sciences Strict control of waste products is essential owing to the danger of contamination to workers The possibility of delayed effects on both the patient and the investigator must be rigidly guarded against (Table XLIII pages 538 540)

Indications for Use

For the ambulatory patient I^{131} offers a treatment which may be repeated once or twice if there is recurrence of toxicity It presents an inviting vista to the elderly toxic patient burdened with cardiac failure who has already undergone fruitless thyroidectomy especially if complicated by unilateral recurrent laryngeal nerve palsy or chronic tetany and whose small goitre presents serious operational difficulties

The middle aged mildly hyperthyroid woman who has a small diffuse goitre and who refuses operative relief after a protracted but fruitless course of anti thyroid drugs is particularly benefited

The pregnant woman especially after the first two months should not be given radioiodine owing to the danger to the foetus The child should not be nursed at the breast of a woman receiving radioiodine because of its easy passage in the milk (page 483)

In the present state of our knowledge no adolescent or patient under the age of forty years should be treated with radioiodine owing to the possible delayed carcinogenic effect The added probability of a multinodular goitre concealing a malignant or precancerous adenoma in its midst (Fig 412) should deter the wary clinician from routine use of the isotope This is even more important than the risk of malignant change resulting directly from radioactivity although the carcino genic action of radioiodine in man is not proven

Dosage

The oral dose used in most clinics nowadays varies from 3 to 5 millicuries for the first treatment being increased to 7 millicuries for resistant cases This

tends to diminish the incidence of post radiotherapeutic hypothyroidism which varies from below 5 to 15 per cent The dose varies with the size of the gland its estimated uptake and the effective half life of the isotope which is eight days The smaller and less toxic the gland the less is the dose required

The optimal dose for hyperthyroidism usually ranges from 100 to 200 microcuries per gram of thyroid and varies in different clinics

Resistance to radioiodine may be spontaneous or very occasionally follow prolonged anti thyroid drug therapy A time lag of one or two months before the isotope becomes effective may be accompanied by transient exacerbation of the thyrotoxicosis

Complications

Hypothyroidism occurs in 5 15 per cent of patients especially where excessive doses of radioiodine have been given initially It is usually transient in nature and of a relatively mild degree Severe myxoedema occurs much less frequently now that the size of the gland—always a difficult problem—can be assessed more precisely The hypothyroid state reacts very well to thyroid substitution therapy

A *transient acute thyroiditis* when the thyroid may become hard and tender is very rarely seen it soon resolves

Exophthalmos may be exacerbated if already advanced before treatment Malignant exophthalmos has been reported in a number of instances by various clinics Its mechanism simulating that of the post operative type has already been discussed The need for preventing overdosage in any instances showing the warning eye signs such as a tense tender and turgid eye ball requires no emphasis Thyroid substitution therapy to the limit of tolerance is sometimes required (page 332)

Thyroid crises were noted initially in the early days of radioactive treatment but do not occur nowadays (page 271)

Localised solid oedema of the legs occurs but exceptionally and then only as the result of overdosage

With the advance in technique recorded during the past two years these complications have been largely eliminated

Results from 1,720 Recorded Cases

The most comprehensive and useful record available derives from Seed and Jaffe (1953) The results of their detailed study of 1 720 hyperthyroid patients treated in some 19 different centres by means of radioiodine may be summarised —

	Percentage of Cases
1 Satisfactory remission occurred	80
2 Hypothyroidism was a complication	9
3 Unsatisfactory results were recorded	5
4 Incomplete reports or patients died subsequently	6

Toxic diffuse goitres occurring at an average age of 40 years gave more favourable results than toxic nodular goitres seen at approximately 59 years So important is this difference that I have tabulated their results for easier reference

	Toxic Diffuse Goitre	*Toxic Nodular Goitre*
Tracer dose	Thyroid uptake about 70%	Uptake less
Therapeutic dose	Small mildly toxic goitre 4 m C Small moderately toxic 6 8 m C Very large severely toxic 15 20 m C	Moderate size 20 m C Large size 30 35 m C
Results	*Control* easily effected in above 60% of cases	More difficult Occurs in smaller percentage about 55%
	Size of goitre becomes greatly diminished and may dis appear Becomes firmer	Does not disappear even if toxicity is eliminated Becomes very firm
	Exacerbation of symptoms May occur very rarely occasionally severe	Not reported
	Latent period for remission 3 months approximately for 40 gm weight of thyroid 5 months approximately for 70 gm weight	6 to 8 months approximately
	Hypothyroidism occurs in 10 to 15%	About 5%
	Repetitions of treatment Infrequent	Frequently required
Specific considera tions	*Estimation of dosage* The normal sized toxic gland requires 4 m C Each additional 10 gm of thyroid weight necessitates an added dose of 1 m C Recurrent goitres require at least 6 8 m C Younger patients with small goitres are given the minimal dose Elderly patients if moderately toxic are given an additional 1 or 2 millicuries If severely toxic a few more millicuries are added to this dose Cardiac decompensation necessitates doubling the dose Overweight patients should be given less than those of normal weight No instance of genetic or carcinogenic effect has yet been indubitably observed	
Conclusions	*Radioiodine* is advised by Seed for the recurrent toxic goitre and most of the toxic diffuse goitres over the age of 45 years The cure is however more difficult and less certain than by operation The goitre does not disappear completely *Operation* is indicated for large toxic goitres and toxic nodular thyroid glands This removes the goitre effects a certain cure and is rarely conducive to complications or recurrences	

3 THYROIDECTOMY

Indications for Surgery

Surgery still remains the ideal treatment Unlike the anti thyroid drugs and radioactive iodine which are of real service only in the first two that is the toxic phases surgery has its role in all the phases of epithelio lympho fibrosis

A large firm nodular goitre with possible retrosternal or retropharyngeal extensions and the existence or threat of pressure phenomena specifically indicate the need for surgery The presence of a single hard nodule in an otherwise diffusely enlarged gland or a number of hard nodules suggests the possibility of malignancy and therefore the need for exploration and if necessary surgery

Protracted medical treatment with constant recurrences of toxicity after cessation of the anti thyroid drug therapy leading to semi invalidism as well as drug sensitivity frequently force the patient to demand surgical relief in spite of an initial fear of the operation Change of residence to areas where medical surveillance is not adequately thorough swings the pendulum over in favour of surgical intervention

Auricular fibrillation is no bar to surgery provided that the preliminary detoxication has been thorough If the cardiac impairment is due to hyper thyroidism as it often is thyroidectomy will cure this irregularity (Table XLIII pages 538 540)

Preparation

Severely toxic patients must be made euthyroid by a preliminary treatment with an anti thyroid drug propyl or methyl thiouracil Subsequent iodine therapy by means of Lugol s iodine for two or three weeks will produce involution of the gland and thus diminish its vascularity friability and extra glandular adhesions

Moderately toxic patients need a minimal dose of thiouracil and subsequent iodine therapy for two weeks *Minimally toxic* cases require only iodine therapy for two weeks It is preferable to perform thyroidectomy on a mildly toxic patient than on a hypothyroid as post operative respiratory complications are more likely to occur in the latter

The patient usually requires only one or two days to accustom herself to the hospital surroundings unless her cardiotoxic condition necessitates preliminary bed rest and digitalisation

Premedication

Omnopon gr $^1/$ and scopolamine gr $^1/_{1s}$ is given one hour before operation Half that dose is repeated half an hour before operation This permits a subsequently easy intravenous induction with pentothal on a sleepy quiet and co operative patient Elderly thyrocardiacs or patients suffering from pressure symptoms are given only the initial dose as respiratory complications may ensue

The more advanced the lymphoid phase as in fibro lymphoid hyperplasia and fibrosis the more obvious are the pressure phenomena and the more adversely does the elderly patient react to an extensive operation

Anaesthesia

General anaesthesia by means of gas and oxygen the latter of a high concentration is indicated for all the six phases Local anaesthesia is not used nowadays neither is cyclopropane favoured, as it tends to increase the blood pressure and hence the bleeding. This becomes a decided disadvantage in severely toxic patients whose preliminary thiouracil medication increases the vascularity adhesions and therefore the technical difficulties of the operation

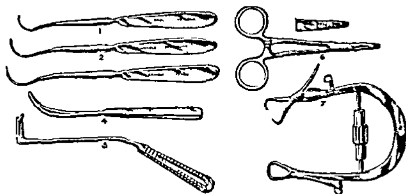


FIG 467
Instruments used during Thyroidectomy

1 3 Aneurysm needles
4 Thyroid enucleator
5 Cranked thyroid retractor for the superior and inferior poles
6 Artery forceps
7 Joll s self retaining thyroid retractor

The danger to the recurrent laryngeal nerve in small toxic recurrent goitres is an ever present one Excessive bleeding in the thyroids of the first two phases which are more prone to recur necessitate *preliminary inspection of the vocal cords* in order to assess their integrity

The *endotracheal tube* is not usually required in the earlier and the more toxic phases It is essential where the operation is performed for reasons of pressure when anoxia threatens in an elderly thyrocardiac or when the cartilages have become scabbard and softened by chronic thyroiditis or growth

Induction must be rapid without elevation of the pulse Ether is avoided as laryngospasm in the elderly cardiac cripple may be fatal Pethidine 50 mg facilitates an easy induction

Adequate posturing of the head and shoulders by means of a Dunhill rest and elevation of the head end of the table prevent venous congestion especially in the difficult cases

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Surgery still remains the ideal treatment Unlike the anti thyroid drugs and radioactive iodine which are of real service only in the first two that is the toxic phases surgery has its role in all the phases of epithelio lympho fibrosis

A large firm nodular goitre with possible retrosternal or retropharyngeal extensions and the existence or threat of pressure phenomena specifically indicate the need for surgery The presence of a single hard nodule in an otherwise diffusely enlarged gland or a number of hard nodules suggests the possibility of malignancy and therefore the need for exploration and if necessary surgery

Protracted medical treatment with constant recurrences of toxicity after cessation of the anti thyroid drug therapy leading to semi invalidism as well as drug sensitivity frequently force the patient to demand surgical relief in spite of an initial fear of the operation Change of residence to areas where medical surveillance is not adequately thorough swings the pendulum over in favour of surgical intervention

Auricular fibrillation is no bar to surgery provided that the preliminary detoxication has been thorough If the cardiac impairment is due to hyper thyroidism as it often is thyroidectomy will cure this irregularity (Table XLIII pages 538 540)

Preparation

Severely toxic patients must be made euthyroid by a preliminary treatment with an anti thyroid drug propyl or methyl thiouracil Subsequent iodine therapy by means of Lugol s iodine for two or three weeks will produce involution of the gland and thus diminish its vascularity friability and extra glandular adhesions

Moderately toxic patients need a minimal dose of thiouracil and subsequent iodine therapy for two weeks *Minimally toxic* cases require only iodine therapy for two weeks It is preferable to perform thyroidectomy on a mildly toxic patient than on a hypothyroid as post operative respiratory complications are more likely to occur in the latter

The patient usually requires only one or two days to accustom herself to the hospital surroundings unless her cardiotoxic condition necessitates preliminary bed rest and digitalisation

Premedication

Omnopon gr 1/ and scopolamine gr 1/50 is given one hour before operation Half that dose is repeated half an hour before operation This permits a subsequently easy intravenous induction with pentothal on a sleepy quiet and co-operative patient Elderly thyrocardiacs or patients suffering from pressure symptoms are given only the initial dose as respiratory complications may ensue

The more advanced the lymphoid phase as in fibro lymphoid hyperplasia and fibrosis the more obvious are the pressure phenomena and the more adversely does the elderly patient react to an extensive operation



FIG 469
Disposition of the Arterial Supply and Venous Drainage of the Thyroid Gland

The sites of surgical ligature are shown. A separate supply to the pyramidal lobe from high up the superior pedicle is shown. This *junction is above the usual site of ligature of the pyramidal artery* This must be ligated separately near the base of the pyramidal lobe. On the right, the ligature for the superior pedicle is highly placed and includes the pyramidal artery On the left, the pyramidal artery escapes the ligature and requires tying separately The sites of ligature of the middle and inferior thyroid veins are indicated.

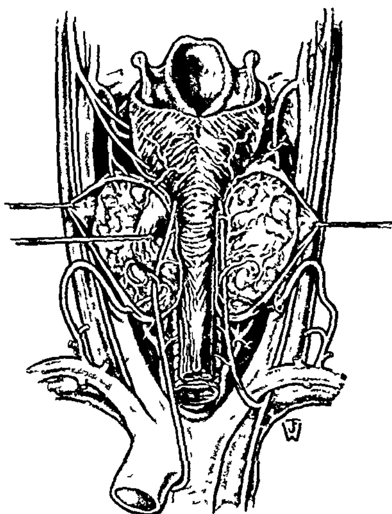


Fig 468

Posterior View of Thyroid

The anatomical relations of the thyroid are shown The triangle of danger bounded medially by the recurrent laryngeal nerve laterally by the common carotid artery and above by the inferior thyroid artery is shown The tortuous course of the inferior thyroid artery and its site of ligature deep to the common carotid artery are illustrated The relation of the recurrent laryngeal nerves and the parathyroid to the inferior thyroid artery are best appreciated from this view The intimate relationship of the superior laryngeal nerve to the superior pole explains its occasional *injury during difficult delivery of the superior pole Compare the* antero lateral view shown in figure 483



FIG 471
Infiltration of Skin with Adrenalin
About 100 cc of 1 in 200 000 adrenalin is injected into the subcutaneous area shown above The injection infiltrates deep to the platysma facilitating exposure of the fascial planes Bleeding is minimised

Steps of the Operation

Infiltration of skin Preliminary infiltration of skin with adrenalin (Fig 471) in strength of 1 in 200 000 facilitates the reflection of the skin flaps in the correct plane Bleeding is also reduced to a minimum

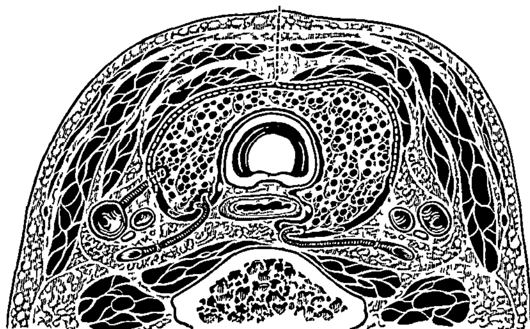


FIG 470

Anatomical Planes of Cleavage

The median incision is followed through the interplatysmal fascia and between the infra hyoid muscles *through the outer false capsule of the thyroid* *On the left* the plane of cleavage is followed between the false and true capsules until the lateral thyroid vein is displayed traversing this space The vein is doubly ligated and cut allowing free access to the common carotid artery The carotid fascia covering the common carotid artery is opened longitudinally by blunt dissection The carotid artery is displaced laterally and the posterior layer of the carotid sheath is entered displaying the subjacent inferior thyroid artery which is ligated in continuity *On the right* a similar procedure is followed the lateral thyroid veins being absent

The bevelled point of the progressively advanced needle is preceded by a steady injection of the solution under pressure supplied by a continuous feed of the Dunn s syringe The skin is raised one quarter inch in the area shown in figure 471 by the subcutaneous injection which infiltrates deep to the platysma and raises it mechanically from the strap muscles This protects the superficial veins and prevents troublesome haemorrhage

Elevation of the skin flaps The earlier the phase the greater is the need to elevate the upper skin flap with platysma as technical difficulties may require transverse section of the strap muscles

Sharp scalpel dissection with the blade now directed upwards opens the plane of cleavage between the platysma and interplatysmal fascia superficially and the strap muscles deeply (Fig 470)

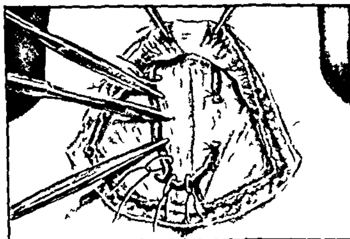


FIG 473

Dissection of the Flaps and Isolation of the Anterior Jugular Veins

The upper and lower flaps have been dissected Three stages in handling of the anterior jugular veins are illustrated The anterior jugular veins do not require ligaturing unless technical difficulties arise
A *Right* The anterior veins have been clamped ligated and are being cut preliminary to the transverse incision of the strap muscles B *Left* The ligated veins are distracted slightly C *Below* The transverse communicating vein occasionally requires ligature and cutting especially in dealing with a retro sternal goitre

The upper flap is retracted by an assistant who has fixed two sharp hooks to its two lateral extremities The subplatysmal compartment is easily displayed (Fig 473)

Occasionally the necessity for transection of the deeper strap muscles necessitates preliminary ligature of the vertical anterior jugular vein This is carefully isolated underrun with sutures half an inch apart and then transected with the scalpel at the proposed line of muscle section

The lower flap need not be liberated so extensively unless a retrosternal extension is present or suspected (Fig 473) It should extend to a level just above the sternum A Joll s thyroid retractor is inserted to separate the two flaps

Incision A transverse incision (Fig 472) is made half to one inch above the clavicle and extending from one sterno mastoid to the other The *earlier phases* show a more adherent haemorrhagic friable and vascular gland The technical difficulties have been increased at least fourfold by preliminary thiouracil medication as well as by the consequent danger of recurrent laryngeal nerve paralysis and tetany In spite of the relative smallness in size of the gland, adequate exposure

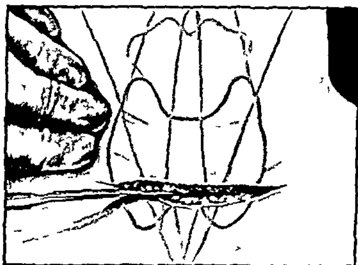


FIG 472
The Incision
This is transverse extending from one external jugular vein to the other about one inch above the sternum It may be lengthened if technical difficulties are anticipated

is necessary By contrast, the *gland in diffuse lymphoid hyperplasia* and the *early stage of fibro lymphoid hyperplasia* is larger, it has minimal adhesions, is much more solid in structure and can be mobilised with facility The exposure need not be very extensive In the *phase of fibrosis or chronic thyroiditis* the technical difficulties may be immense owing to multiple adhesions tying the gland to the neurovascular bundle and strap muscles A more extensive incision is required in this very rare advanced phase

Three equidistant faintly visible vertical scratches three quarters of an inch long over the proposed incision help its final optimal apposition

In large predominantly unilateral goitres the outer third of the incision is made to slant slightly upward on that side so as to obtain a final transverse scar

The scalpel is directed at right angles to the surface so that the maximal convexity of the blade and not its tip penetrates the skin cleanly (Fig 472) The platysma and interplatysmal fascia are traversed stopping short of the pretracheal strap muscles to which the anterior jugular veins remain attached (Fig 473)

Ligation of the inferior thyroid veins These must be exposed separately doubly ligated and cut as far from the innominate veins as possible This forms an integral step of the operation for all the phases (Fig 475)

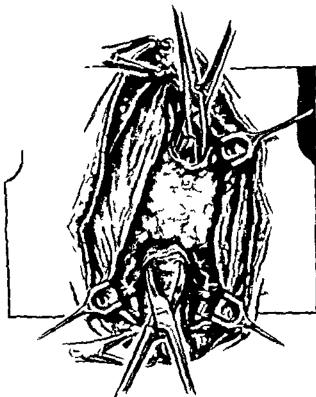


Fig 475
Baring the Trachea and Liberation of the Isthmus
The trachea has been identified and the superjacent inferior thyroid veins have been isolated doubly ligated and cut *The strap muscles are retracted laterally* The lower border of the isthmus is identified and a curved Spencer Wells forceps is insinuated upwards between it and the trachea Its blades are then opened A similar procedure at its upper border will identify the pretracheal fascial plane deep to the isthmus

Liberation of the isthmus from the trachea This is accomplished by means of a curved Spencer Wells forceps It is an important step of the operation even if only a wedge excision of the isthmus is contemplated for chronic thyroiditis or advanced fibrosis of the thyroid (Fig 475) The curved Spencer Wells forceps is insinuated in the plane between the isthmus and trachea Its blades are then opened gently

Midline separation of the strap muscles The greater the expected difficulties of the operation the higher should the strap muscles be separated in the midline by blunt or scissors dissection This is particularly necessary when the operation is performed for pressure symptoms arising from an abnormally high upper pole or the retropharyngeal collar like extensions seen in the late stage of fibro lymphoid hyperplasia (Fig 474)

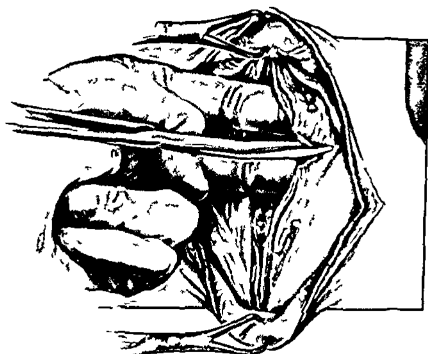


FIG 474

Midline Separation of the Strap Muscles and Transection of the Strap Muscles

This manoeuvre is not usually required unless technical difficulties arise such as in adherent haemorrhagic thiouracil goitres The upper and lower flaps have been dissected and the Joll s retractor has separated these flaps The strap muscles have been separated in the median plane The two fingers under the strap muscles separate them from the thyroid capsules and protect the internal jugular vein The anterior jugular veins have been ligated

Baring the trachea This is the keystone to the operation Digital palpation usually localises the trachea It is found with relative facility in the initial and most toxic phase The growth of the expanding gland in lymphoid hyperplasia especially when it involves the isthmus tends to cover the trachea In fibrosis as well as in chronic thyroiditis and sometimes in the thiouracil treated gland the trachea is so incorporated with the thyroid gland to which it is tied by many tracheo thyroid adhesions that it may not be identified easily (Fig 475)

With the palm projected forwards two fingers are insinuated deep to the still retracted strap muscles passing between them and the lateral lobes The tips of the fingers protect the internal jugular vein from injury Careful scissors dissection ensures safe transection of the strap muscles without disturbing the thyroid veins

Ligation and section of the lateral thyroid veins The lateral thyroid veins often multiple in disposition are separately localised doubly ligated and

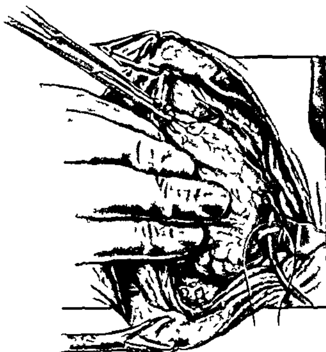


FIG 477

Ligation in Continuity of the Inferior Thyroid Artery

The lateral lobe is mobilised and retracted forwards The common carotid artery is palpated digitally and bared by blunt dissection in a vertical direction It is retracted laterally The inferior thyroid artery is palpated localised by blunt dissection as it runs transversely It is underrun with a loaded aneurysm needle and is then tied in continuity

sectioned as far from the internal jugular vein as possible This prevents the possibility of a slipped ligature (Figs 470 and 476)

Section of the superior thyroid pedicle The superior pole is then exposed the manoeuvre being facilitated by upwards retraction of the strap muscles When multiple adhesions due to a thiouracil treated gland occur the strap muscles may be separated still further upwards in the midline or be transected at this juncture (Fig 476)

Posterior projection of the superior poles especially in the later diffuse lymphoid and fibro lymphoid goitre is best managed by a manoeuvre advised by Piercy (1950) The fascia covering the lateral aspect of the superior pole is nicked by

Exposure of the capsule of the lateral lobe of the gland The strap muscles are retracted outwards by means of the muscle retractors held by an assistant on a plane radiating from the centre of the trachea The plane of blunt dissection lies between the true and false capsule (Figs 470 and 476)

The more toxic the phase the softer and more distensible is the capsule the more advanced the phase the more inelastic and fibrous does the capsule become

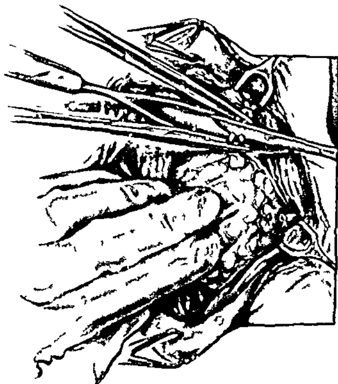


FIG 476

Ligation of the Lateral Thyroid Veins and the Superior Pedicle

The lateral lobe of the thyroid gland is exposed and opened between the true and the false capsule The lateral thyroid veins are identified doubly ligated and cut leaving a long distal segment entering the internal jugular vein The superior pole and pedicle are identified by muscle retraction The superior pole is liberated by blunt dissection of its posterior encompassing fascia and digital manipulation forwards Kocher s director passed latero medially delivers the upper pole and pedicle which is doubly ligated and incised

until in late fibro lymphoid hyperplasia fibrosis and *par excellence* in chronic thyroiditis it becomes tied securely to the false capsule and the strap muscles Intensive thiouracil therapy in toxic epithelial hyperplasia emphasises this feature

The plane of cleavage must be identified lying deep to the retracted muscles and superficial to the true capsule which covers the network of veins

Exposure of the lateral lobe Where difficulty is encountered in exposing the lateral lobe the strap muscles may be transected at a high level after ligating the superficial anterior jugular veins above and below the proposed line of section (Fig 474)

laterally by the common carotid artery and *medially by the important recurrent* laryngeal nerve running upwards *in the tracheo-oesophageal groove* (Fig 477)

The floor of this triangle *is formed on the left* by the vulnerable oesophagus and on the right by fatty areolar tissue (Figs 468 and 483)

The *inferior thyroid artery is* identified running infero medially It is cleared by careful blunt dissection in a lateral direction Assisted by outward retraction of the common carotid artery it is ligated as far laterally as possible This ensures

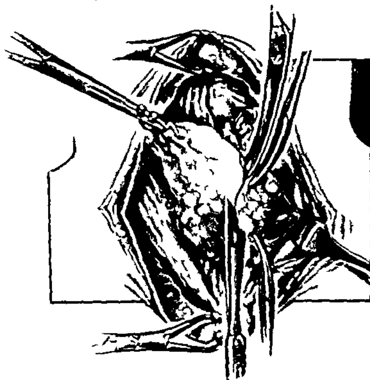


Fig 478

Formation of the Residue

The thyroid is swung over to the opposite side with the liberated superior pole as the fulcrum Two Spencer Wells forceps bite ½ inch of the upper and lower borders of the lobe in the line of section *Curved scissors cut the lobe anterior to these forceps A convex* line by means of scalpel incision directed in line of the trachea joins these marking forceps

the safety of the recurrent laryngeal nerve and helps to identify duplication of the artery when it has divided into branches while still lateral to the common carotid artery (Figs 477 and 478)

Formation of the residue The size of the residue is assessed The more toxic the gland the smaller is the residue The more advanced the lymphoid degeneration the greater is the amount of residue which may be retained In the final phase of fibrosis a wedge resection of the isthmus suffices The parathyroid glands are identified They must be retained with the residue (Fig 478)

blunt dissection and the true capsule of the gland is exposed for a vertical distance of about half an inch The finger is gently insinuated deep to the superior pole within the false capsule and the terminal phalanx is passed medially till it is found to *encircle the posterior extension This projection* can then be liberated and brought forward with facility by flexion of the terminal digit

A muscle retractor in the hands of an assistant retracts the strap muscles upwards and outwards to expose the superior pedicle above the liberated superior pole Blunt tissue dissection on its medial aspect frees the pole more adequately

A second retractor assists in pulling back the strap muscles more effectively from the lateral aspect of the superior pole The Kocher s director is passed laterally deep to the superior pole *and allowed to lie comfortably on the strap* muscles A threaded aneurysm needle is passed on the curved aspect of the Kocher s director The ligature is tied on the superior pedicle as high as possible this manoeuvre being helped by steady sustained retraction of the upper retractor Two sharp pointed Spencer Wells forceps are applied to the superior pedicle This is cut between the forceps by a sharp blade directed on to the curved surface of the Kocher s director (Fig 476)

The superior pedicle is ligated around the upper forceps which is removed The lower forceps is retained on the superior pole of the thyroid to aid its subsequent mobilisation

Transection of the lateral ligaments of the superior pole The superior pole is still approximated to the thyroid cartilage by its lateral ligaments The tip of the finger passed from above downwards deep to the by now partly isolated superior pole enters a digital fossa bounded medially by this ligament attached to the thyroid cartilage in a downward and inward direction This ligament is clamped and tied An occasional feeding artery is found at its proximal attachment to the thyroid cartilage (Fig 477)

Mobilisation of the lateral lobe This important step has been facilitated by isolating and cutting in consecutive order the inferior lateral and superior pedicles of the thyroid gland By lateral and upward retraction of the strap muscles the lateral and inferior surface of the isolated lobe can be gently surrounded by the flexed finger Under direct vision the margins of the lobe and its inferior *pole or its extensions are gently explored and liberated forward in a rotary move* ment so that its posterior surface is brought outside the strap muscles and now tends to look postero laterally (Figs 476 and 477)

Identification of the common carotid artery The common carotid artery is now palpated Blunt dissection in a vertical direction along the line of this vessel is safe transects the sheath and exposes this artery The liberated internal jugular vein and the vagus nerve lie respectively on an antero lateral and posterior plane in the same neurovascular bundle but are separated by the common carotid artery (Figs 476 477 and 478)

Ligation of inferior thyroid artery in continuity Deep retraction displaces the liberated common carotid artery laterally Digital palpation against the vertebrae posteriorly or the tracheal rings medially usually identifies the course of the inferior thyroid artery The latter forms the base of a triangle bounded

The Five Forceps Tier Procedure

A Bard Parker blade directed on to the line of the trachea describes a convex incision which joins the ends of these two forceps It ensures the integrity of the parathyroids which must be retained with the residue Two further forceps are similarly applied parallel to and in line with the previous forceps with ends pointing to each other A further quarter inch of the isthmus is gripped by each forceps and transected by means of the scissors (Fig 479)

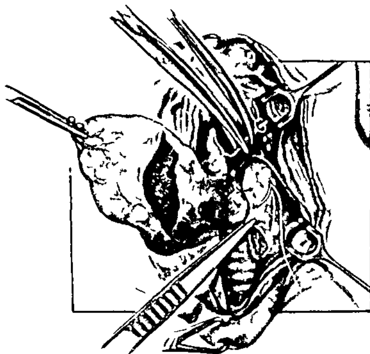


Fig 480

Reconstitution of the Lobe and Cutting of Blood Supply to the Pyramidal Lobe

The residue is reconstituted by interrupted sutures tying the capsules to the fascia lining the lateral aspect of the trachea The artery to the pyramidal lobe is isolated separately preferably deep to the base of this lobe It is ligated and cut The lateral lobe is shown still tied down to the trachea by the adherent pyramidal lobe

A pedicle bridge about a quarter inch still remains joining the residue to the isthmus and opposite lobe This bridge is now encircled by a fifth forceps as near the residue as possible and is transected The residue has now been liberated

Gentle sharp dissection directed medially on to the trachea completes the separation of the isthmus from the residue

Liberation of the pyramidal lobe The pyramidal lobe *mirrors in general* any pathological change which may involve the rest of the thyroid gland Its successful removal in an excessively hyperplastic gland following thiouracil medication may test the most intrepid surgeon (Figs 469 and 480)

A curved Spencer Wells forceps reopens from below the cleavage plane between the posterior surface of the isthmus and the rounded circumference of the trachea It is insinuated laterally on the antero lateral aspect of the trachea opened and pointing upwards grasps about a quarter inch of the inferior part of the isthmus at its junction with the lateral lobe A forceps is similarly insinuated between the superior border of the isthmus at its junction with the lateral lobe

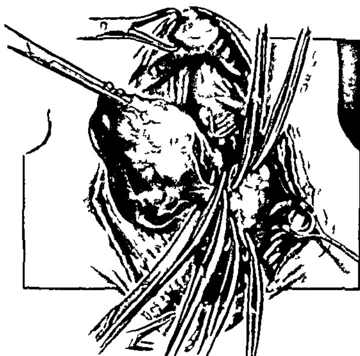


Fig 479

The Five Forceps Tier Procedure

Two Spencer Wells blades grip a further part of the lobe anterior to the first two forceps Scissors incision in similar fashion liberates the lobe partly as shown above The fifth forceps grasps the bridge connecting the residue with the liberated lobe Scissor section distal to this forceps disconnects the bridge It allows full access to residue and simultaneously liberates the rest of the lobe

Pointing downwards it is brought in line with the lower forceps and grips about a quarter inch of thyroid tissue These two forceps now define the line of section Two three or four intermediate forceps are placed along this line depending on the size of the gland to effect pressure on the superficial veins (Fig 478)

A scissors is insinuated between the lower forceps and the trachea and the thyroid tissue is transected for a quarter of an inch medial to the forceps A similar manoeuvre separates the upper part of the lateral border of the isthmus from the trachea (Fig 478)

its rounded and bulbous termination The pyramidal lobe is dissected from the trachea (Figs 480 and 481)

Liberation of the whole lobe The lateral lobe with the attached pyramidal lobe is then rolled still further over to the opposite side It is separated from the antero lateral aspect of the trachea by blunt or scissors dissection (Fig 481)

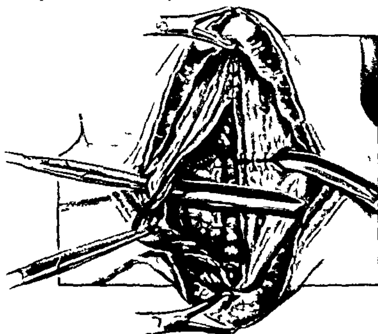


Fig 482
Drainage and Terminal Manoeuvres
The opposite lobe is removed in a like manner Where the strap muscles have been sectioned they are approximated with interrupted sutures the lateral end of the incision is used for passage of the drainage tube which is passed from within outwards Otherwise a vertical incision is made through the medially retracted strap muscles anterior to the sterno mastoid to provide direct drainage The medial end of the tube is made to be at the side of the residue The fascia covering the strap muscles is approximated in the median plane *Platysma is approximated separately by continuous fine catgut suture* The drainage tube lies snugly in the lateral extremity of the skin incision being fixed by a separate holding suture

Bloodless thyroidectomy ligature Haemostasis is facilitated in haemorrhagic glands by a bloodless thyroidectomy ligature Passed around the isthmus beyond the pyramidal lobe and tied tightly it minimises bleeding from the liberated lobe and allows removal of all the haemostatic forceps applied to it (Fig 481)

Liberation of the opposite lobe This is accomplished in a similar manner except that the surgeon may find it convenient to operate from the other side

Reconstitution of the residue It is advisable to retain an adequacy of capsule when fashioning the residue This provides a covering for the residue and at the same time tends to conserve any parathyroid glands which may be situated more forward than usual (Figs 485 490)

Successful removal of the lobe lies in the appreciation of its blood supply A second direct branch running parallel to the supero medial branch of the superior thyroid artery arises above the point of ligation of the superior pedicle It has not yet been ligated at that stage The artery runs directly to the postero medial aspect of the pyramidal lobe meets its counterpart and gives off branches running upwards to the tip of the lobe as well as branches anastomosing with the supero medial branch of the superior thyroid artery at the base of the pyramid

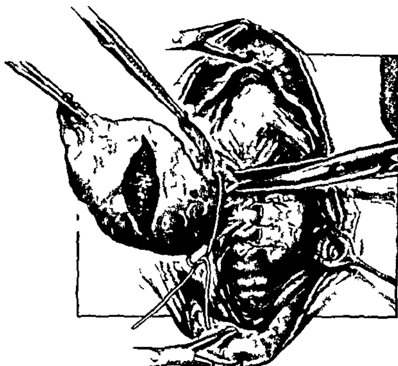


FIG 481

Liberation of the Pyramidal Lobe and the "Bloodless Thyroidectomy Ligature

The pyramidal lobe is carefully isolated to its tip by blunt dissection and upward retraction of the strap muscles Scissors curved on the flat sever the tracheo thyroid bands tying down the gland to the trachea A ligature passed around the isthmus beyond the pyramidal lobe and tied tightly will minimise bleeding from the liberated lobe and allow removal of all haemostatic forceps

Carpet roll manoeuvre The liberated lateral lobe is rolled over the trachea It is still however tied down to it by the attached pyramidal lobe Upward retraction of the supra hyoid muscles in the median plane by an assistant aids visualisation of the pyramidal lobe (Fig 481)

The posterior aspect of the attached pyramidal lobe is displayed by blunt dissection Spencer Wells forceps passed below and lateral to the base of the pyramid grasp its direct blood supply This is ligated The manoeuvre is repeated on the other side to ligate the heterolateral feeding artery of the pyramidal lobe The pyramidal lobe is followed to its tip by blunt dissection The latter is identified by

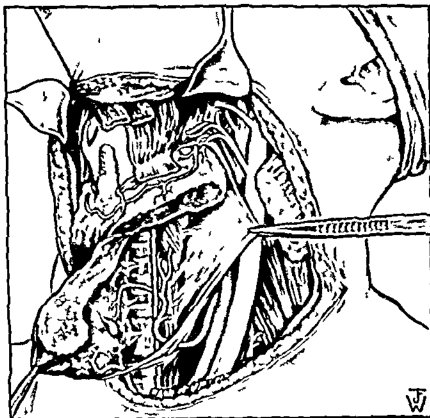


Fig 483

Anatomical Topography illustrating Difficulties in Thyroidectomy

The "triangle of danger" is well seen with the oesophagus forming its floor It is bounded medially by the recurrent laryngeal nerve laterally by the common carotid artery and above by the inferior thyroid artery The latter supplies the inferior parathyroid gland. The relation of the false capsule to the thyroid gland and the surrounding structures, especially the inferior thyroid artery and vein as well as the recurrent laryngeal nerve is shown The superior thyroid artery is seen supplying the superior pole Parts of the sterno mastoid muscle and the lateral lobe have been removed to display their deep relations

Ligatures are tied around the Spencer Wells forceps left in situ The lateral borders of the residue are approximated by interrupted sutures to the lateral aspect of the trachea When this is rendered difficult in a friable gland a small V shaped gutter cut into the raw edge of the residue facilitates approximation of its borders (Figs 480 and 481)

In the very hyperplastic gland or in the later fibro lymphoid hyperplasia this manoeuvre is rendered difficult and should not then be carried out

Terminal manoeuvres The whole operation area is studied Transected strap muscles are identified and approximated by continuous sutures Any oozing or bleeding surface is carefully cauterised or ligated (Fig 482)

Drainage is advisable in operations performed in the first two phases for toxic glands which have become haemorrhagic following protracted thiouracil therapy No drainage is required in the terminal fibro lymphoid phases unless technical difficulties due to many adhesions have been encountered (Fig 482)

Approximation of the transected muscles is effected by interrupted catgut sutures The lateral ends of transected muscles can easily be left unsutured to ensure direct drainage through the muscles to the lateral end of the skin incision Otherwise an exit is effected through the strap muscles by means of a blunt forceps passed from without inwards with due regard to the internal jugular vein The forceps grasp and pull outwards a thin corrugated rubber drainage strip the medial end of which is then placed at the side of the residue The whole operation area is inspected to ensure complete haemostasis (Fig 482)

The fascia covering the strap muscles is sutured in the median plane and the platysma transversely by a continuous fine catgut suture A separate skin suture fixes the drainage tube as it lies snugly in the lateral end of the incision

Clips are applied to the skin If necessary a few thin horse hair sutures used initially will facilitate hair line approximation and a relatively non visible scar The clips are removed after two days and skin sutures after three days

DIFFICULTIES AND DANGERS DURING THYROIDECTOMY

Figure 484 illustrates in the same sequence as they are summarised below some of the operational difficulties and dangers

1 *The superior pedicle may be torn* by forcible downward retraction The vessels must be identified clamped and ligated Forcible upward retraction of the strap muscles and further splitting of these muscles in the median plane of their emergency transection may then be required (Fig 483)

2 *Adherent superior pole* This is usually due to inadequate liberation of the lateral ligament of the superior pole Blunt vertical dissection of its encompassing fascia allows adequate mobilisation of the pole

3 *Avulsed superior pole* This follows forcible retraction and mobilisation or incomplete preliminary liberation of the pole The bleeding points are identified and clamped the superior pedicle is if possible ligated

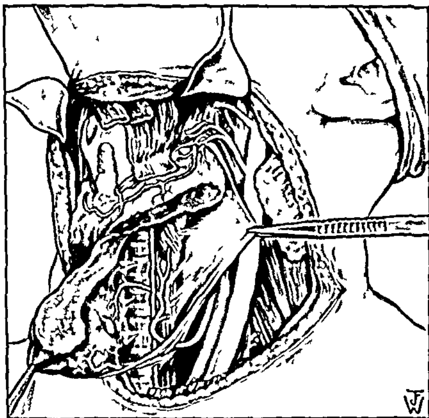


FIG 483

Anatomical Topography illustrating Difficulties in Thyroidectomy

The triangle of danger is well seen with the oesophagus forming its floor It is bounded medially by the recurrent laryngeal nerve laterally by the common carotid artery and above by the inferior thyroid artery The latter supplies the inferior parathyroid gland The relation of the false capsule to the thyroid gland and the surrounding structures, especially the inferior thyroid artery and vein as well as the recurrent laryngeal nerve is shown The superior thyroid artery is seen supplying the superior pole Parts of the sterno mastoid muscle and the lateral lobe have been removed to display their deep relations

4 *Retrolaryngeal residue* Inadequate mobilisation of the superior pole and technical difficulties due to a friable adherent gland may be conducive to the retention of such a residue and the possibility of recurrent growth or toxicity

5 *Adherent internal jugular vein* This may be torn by forcible delivery of the lateral lobe The vein is easily identified and ligated

6 *Multiple lateral thyroid veins* Each vein must be carefully isolated by blunt dissection underrun with a loaded aneurysm needle doubly ligated and cut

7 *Short lateral veins* require very careful dissection especially when a large adherent lobe is overlapped by a flattened internal jugular vein The internal jugular vein may be acutely kinked by this tributary and is then easily torn Careful forceps ligature is required

8 *Recurrent laryngeal nerve* Running out of its usual course or projected abnormally by adenomata it may be stretched or injured during too forceful liberation of the lateral lobe Continual awareness of this nerve is therefore essential *The superior laryngeal nerve* may occasionally be injured during difficult delivery of the superior pole (Fig 468)

9 *Oesophageal injury* This may rarely follow liberation of an adherent retro sternal lobe or an energetic search for the inferior thyroid artery on the left side The oesophagus must be remembered as forming the floor of the left triangle of danger If injury does occur in handling very adherent or neoplastic growths the rent must be sutured and drainage established externally from the para oesophageal groove (Fig 484) An antibiotic and chemo therapeutic cover insures against infection

10 *Tracheal injury* may occasionally follow removal of very adherent glands Identification and suture suffice

11 *Short inferior thyroid veins* may present difficulty during liberation of retrosternal goitres Preliminary identification and meticulous isolation and ligature with retention of a long proximal segment of vein are important (Fig 494)

12 *Pyramidal lobe* This may be discrete attached by an attenuated pedicle or very adherent to the trachea Careful dissection of the whole lobe with preliminary ligation of its special blood supply is always required

13 *Haemorrhage* from an adherent friable and very vascular gland may occur especially after thiouracil therapy The usual precautions mentioned particu larly care in preliminary isolation of vessels and the use of the bloodless thyroidectomy ligature are helpful

14 *Parathyroid (ectopic or intrathyroidal)* The preliminary identification of the parathyroid gland and its preservation by retention of the excess capsule (Figs 485 and 486) prevents hypoparathyroid complications Careful handling of the residue and the prevention of undue pressure are essential (Figs 487 490)

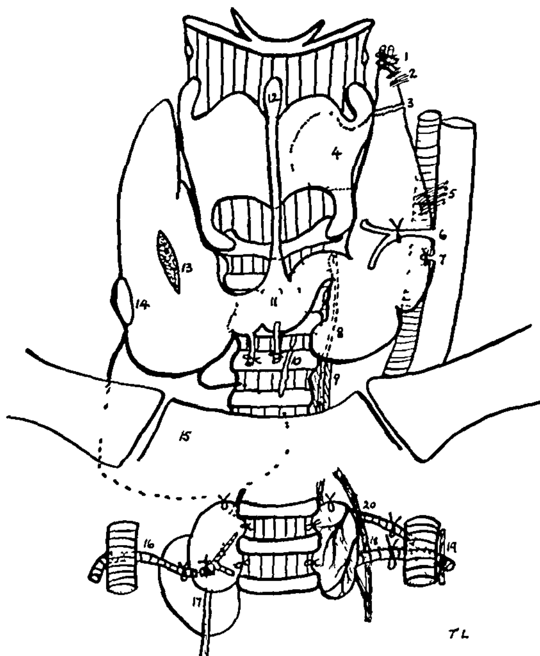


Fig 484

Dangers and Difficulties during Thyroidectomy

Pictorial record of features discussed on pages 518 5.6

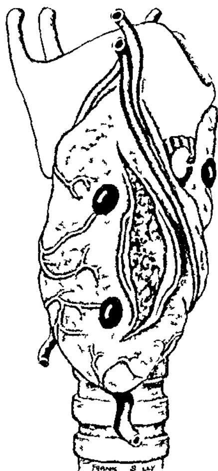


FIG 485

FIGS 485 486
Rare ectopic sites of parathyroid glands encountered in this series are shown

Method of protecting forward displaced parathyroid glands
The capsule is retained and together with the preserved parathyroid glands is incorporated into the residue (*See* figures 487 490)

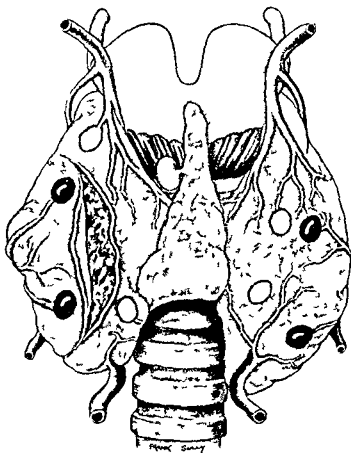
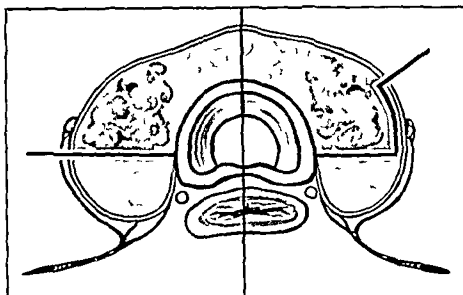


FIG 486



FIGS 487 488

Formation of the Residue of the Thyroid Gland in Adenomata with Preservation of Parathyroids

FIG 487 *Incorrect method—showing the removal of the parathyroid with severance of its blood supply*

FIG 488 *Correct method*—the capsule is preserved together with the parathyroid gland The adenoma is removed from within the capsule formed by the thyroid tissue

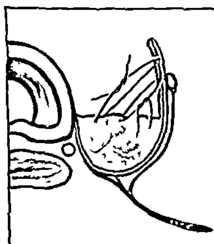


FIG 489

Formation of the Residue of the Thyroid Gland in Adenomata with Preservation of Parathyroids

Approximation of the capsule to the residue The preserved parathyroid is apposed with the capsule to the residue which is fully covered by this envelope *Haemostasis is also encouraged*

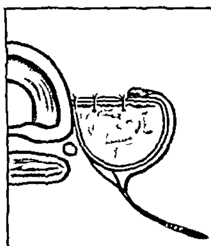


FIG 490

Formation of the Residue of the Thyroid Gland in Adenomata with Preservation of Parathyroids

Final form of the reconstituted residue The blood supply to the parathyroid has been preserved



INCHES 1 2

Fig 491

Displacement of Inferior Thyroid Artery by Retrosternal Projection

The inferior thyroid artery is seen to run transversely *posterior to an elevated anterior lobe It is anterior to the* posterior projection of the thyroid which cannot be liberated while the artery is still intact



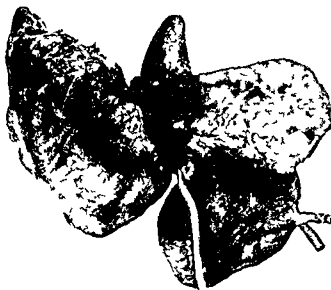
INCHES 1 2

Fig 492

Displacement of Inferior Thyroid Retrosternal Projection

The inferior thyroid artery has been se ing the
posterior projection to bulge forward hen be
liberated with facility

15 *Retrosternal prolongations* especially if adherent or in the posterior mediastinal cavity may require intracapsular enucleation Very rarely a sternal split may be required Preliminary ligature of the venous drainage is important especially of the inferior thyroid veins running into the innominate vein (Fig 494)



INCHES 1 2

FIG 493
Displacement of Recurrent Laryngeal Nerve by Retrosternal Projection
The recurrent laryngeal nerve is shown displaced forward by the posterior projecting thyroid lobe

16 *Abnormal inferior thyroid artery* This artery may be displaced forward by a retrosternal projection Forcible liberation of this extension may endanger the integrity of the artery Preliminary isolation and double ligation of the artery are essential The lobe can then be liberated with ease (Figs 491 492 and 493)

17 The *recurrent laryngeal nerve* may divide into branches at a high or low level These may run either anterior or posterior to one or two branches of the inferior thyroid arte Furthermore they may be deviated laterally or forwards by projecting lob thyroid A detailed knowledge of these abnormalities is essential and vatch must be kept to maintain their integrity at all stages of the op 468 484 and 493)

18 and 20 The *inferior thyroid artery* may occasionally divide into two branches while still lateral to the common carotid artery Both these branches must then be ligated separately or the common tributary may be found by forcible retraction of the common carotid artery

19 The *vagus nerve* may be injured by too forcible lateral traction of the common carotid artery The consequent bradycardia and cardiac arrythmia may react adversely on an elderly cardiotoxic patient

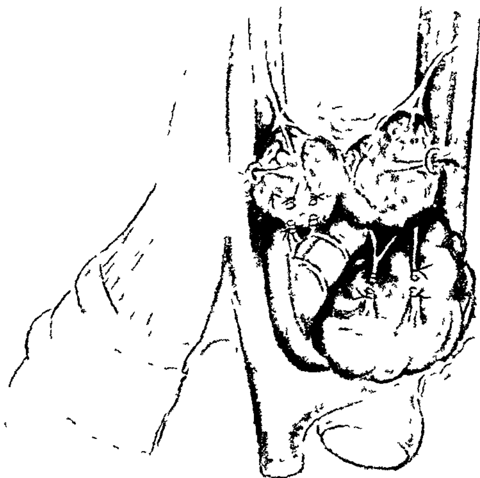


FIG 494

Retrosternal Goitre

The isolation double ligation and incision of the draining veins of the retrosternal lobe is an important step Subsequent blunt digital extracapsular dissection under gentle traction usually suffices Where the capsule is adherent incision of the capsule under direct vision and intra capsular evisceration may become necessary A sternal split is rarely required and then only for a posterior mediastinal projection if adherent

CLINICAL FEATURES:

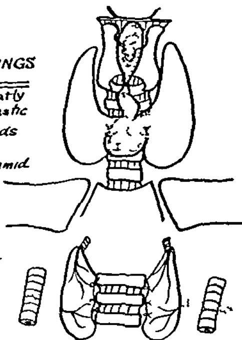
C/o Fatigued Irritable Dyspnoeic
Weight constant
Has had Pulmonary Tuberculosis
Lump in neck for 6/12
Thyroglossal Cyst

O/E Placid Warm No tremor
Pulse 72 regular
Eyes normal
Resp S normal
Cardio Vascular S —



OPERATION FINDINGS

Pyramidal Lobe greatly enlarged, hyperplastic
Bulbous end extends to Hyoid bone
Rest normal
Isthmus below Pyramid also hyperplastic



RESIDUE

Pyramidal Lobe and Isthmus excised
Rest of gland normal retained

PATHOLOGY

Macro Hypertrophied
Not vascular
Not adherent
Micro Lymphoid focal & diffuse
Epithelium atrophy
Fibrosis absent

FOLLOW UP

Gained Weight
Hypothyroid

Fig 495

Localised Wedge Excision of Isthmus in Diffuse Lymphoid Hyperplasia

A pictorial description by the author The presence of lymphoid hyperplasia in this patient is manifested mostly in the pyramidal lobe and isthmus Localised excision of that lobe and the isthmus with preservation of the remaining less affected tissue is indicated The inferior thyroid arteries have not been ligated

18 and 20 The *inferior thyroid artery* may occasionally divide into two branches while still lateral to the common carotid artery Both these branches must then be ligated separately or the common tributary may be found by forcible retraction of the common carotid artery

19 The *vagus nerve* may be injured by too forcible lateral traction of the common carotid artery The consequent bradycardia and cardiac arrythmia may react adversely on an elderly cardiotoxic patient

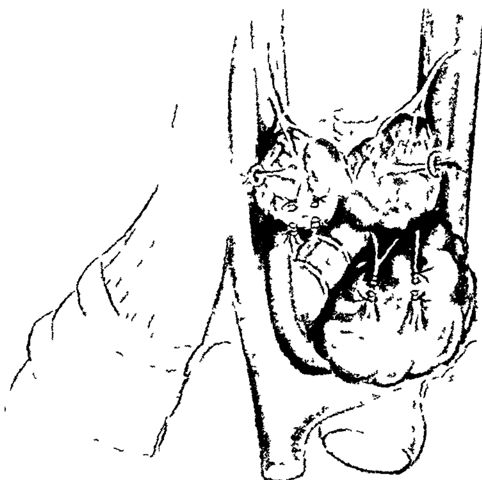


Fig 494
Retrosternal Goitre
The isolation double ligation and incision of the draining veins of the retrosternal lobe is an important step Subsequent blunt digital extracapsular dissection under gentle traction usually suffices Where the capsule is adherent incision of the capsule under direct vision and intra capsular evisceration may become necessary A sternal split is rarely required and then only for a posterior mediastinal projection if adherent

3 Delayed Haematoma

Usually symptomless this haematoma becomes manifest after a few days when the patient is about to leave hospital It is not urgent as no respiratory obstruction *is manifested*

A small and static haematoma may be present at the old drainage site It soon liquefies With aseptic precautions its centre is probed with the blunt end of a needle and the softened contents are easily expressed

A large and slowly growing haematoma is allowed to liquefy The softened clot is evacuated with facility assisted by digital pressure on its margins Subsequent antibiotic therapy is advisable as the possibility of infection from the skin is always present.

TRACHEITIS

The onset of tracheitis may be troublesome and more common in patients with bull necks and chronic bronchitis It occurs less frequently in the earlier and more toxic phases but more commonly in the later and more advanced lymphoid phases *Here the elderly patient may have required an endotracheal tube during* the operation for complications caused by pressure The added technical difficulties associated with thiouracil-controlled goitres have increased its incidence Suitable antibiotics and chemotherapy with inhalations of steaming Friar s balsam effect dramatic relief

DYSPHAGIA

Occasional stretching of the superior laryngeal nerve during delivery of a high superior pole is conducive to temporary dysphagia which soon resolves

STRIDOR

1 Operative

Sudden or delayed stridor during and following an operation is a matter of vital importance Operatively it may accompany laryngospasm due to the anaes thesia when failure of adequate oxygenation may necessitate swift intubation Rotating a *thiouracil hardened gland on to the softened or scabbard trachea during* dislocation of the lobe may induce this complication which is corrected by replacing the gland into its socket Adequate preliminary mobilisation of the lobe will allow it to be rotated easily

The lighter the anaesthesia the more easily can the respiration be observed both by the *anaesthetist and careful surgeon and the sooner can any impending* respiratory difficulty be noted as well as prevented

2 Post-operative

(a) *Tracheal or laryngeal trauma* is best treated by steam inhalations
(b) *Tracheal compression* by a haematoma necessitates evacuation of the blood clot
(c) *Tracheal collapse demands only one procedure—urgent tracheotomy*
(d) *Recurrent laryngeal nerve palsy* is discussed on page 530

COMPLICATIONS FOLLOWING THYROIDECTOM

Adequate selection and preparation of patients has during th greatly reduced the incidence and severity of post operative complic

Just as 1923 heralded the dawn of intensive iodine therapy 194 later saw the advent of thiouracil the surgeon s best friend but w helpmate It has helped to make the patient safe for surgery yet it the surgeon s immediate task more difficult It has simultaneously possibility of *recurrent laryngeal nerve palsy and tetany* du difficulties associated with a much more haemorrhagic friable and a

The *thyroid storm or crisis* is now extremely rare Previous has been given to it on page 271

Vomiting and nausea may occur but react very swiftly to symptomatic measures

HAEMORRHAGE

Prophylaxis

Scrupulous haemostasis prevents haemorrhage Possible post ope from a haemorrhagic gland residue necessitates the use of corrugated r which are removed after 24 hours

1 Sudden Bleeding

In the operating theatre this is usually of arterial origin ' vessel must be identified grasped with a Spencer Wells forceps and ligat

Post operative bleeding often unheralded rapidly fills the op producing sudden stridor from tracheal pressure Treatment must swift Pressure on the trachea must be relieved Skin clips are ren bed and the midline pretracheal suture of the strap muscles is ope extensive gauze pack is applied externally to exert adequate pressure is returned to the theatre and the bleeding point is identified and li good illumination and adequate retraction of the strap muscles

This serious complication is fortunately rare

2 Gradual Bleeding

Venous in origin from any of the jugular veins haemorrhage : insidious producing fewer pressure symptoms The skin may becom covering a gradually filling supraclavicular space

The reassured and sedated patient is taken to the operating theatre

The effects of eight types of paralysis involving the vocal cords are very briefly summarised below —

TABLE XLII

VOCAL CORD PARALYSIS

Type of Paralysis	*Position of Cords*	*Respiration (Stridor)*	*Phonation (Speech)*	*Expulsion (Cough)*
A *Partial recurrent laryngeal nerve paralysis*				
1 Unilateral abductor	Median	Normal	Initial hoarseness returning to normal	Normal
2 Bilateral abductor	Both median with glottic chink	Loud stridor and dyspnoea	Normal or slight hoarseness	Reduced tussive blast
B *Total recurrent laryngeal nerve paralysis*				
3 Complete unilateral	Paramedian	Normal	Hoarse with phonative waste	Normal
4 Complete bilateral	Paramedian	Normal at rest	Feeble with phonative waste	Feeble blast
C *Total combined recurrent laryngeal nerve and superior laryngeal nerve paralysis*				
5 Unilateral combined	Cadaveric and atonic	Normal	Feeble and phonative waste	Feeble blast
6 Bilateral combined	Cadaveric and atonic	Normal	Absent	Absent
D *Total superior laryngeal nerve paralysis*				
7 Paralysis of crico thyroid muscle	Loss of tone Wavy edge	Normal	Feeble and hoarse	Normal
E *Functional causes*				
8 Bilateral adductor	Gross movements normal Variable abduction	Normal	Absent	Normal

PARALYSIS OF THE RECURRENT LARYNGEAL NERVE

This is the dread of the surgeon while his knife lingers anywhere near the tracheo oesophageal groove or when sudden haemorrhage excludes from view the triangle of potential danger already noted Previous laryngoscopy will have ascertained the existence of any paralysis of the nerve due to displacing pressure of retrosternal or adenomatous projections The danger becomes accentuated when a second operation is being performed on a small adherent toxic thyroid already known to be complicated by a unilateral recurrent laryngeal nerve paralysis

The operation of total thyroidectomy at one time the vogue for the elderly thyrocardiac patient was responsible for a sudden rise in the incidence of this complication and of the frequently accompanying tetany

Partial paralysis or paresis of the cord follows stretching or pressure on the nerve during the operation or subsequent involvement in replacement fibrosis the symptoms and signs are often so minimal as to escape detection Any alteration or slight huskiness of the voice a change in timbre especially at the end of the day or after undue exertion needs investigation Diminished explosive power of the cough or inability to reach high notes in singing demands laryngoscopy as compensatory movement of the uninvolved cord across the midline hides this complication

Semon s Law postulates the consecutive triad of changes —

1 *Abduction loss* occurs leaving the cord in the adducted position

2 *Tension loss* relaxes the cord still further

3 *Adduction loss* in the final stage shows the cord in the partially abducted mid cadaveric position

The following functions of the vocal cords may be affected —

1 *Respiration* is obstructed leading to increasing stridor

2 *Phonation* is affected as exemplified by speech defects

3 *Expulsion* of foreign bodies is affected leading to interference with the cough mechanism

These three functions of respiration phonation and expulsion are specially affected by the triad of changes resulting from adduction tension loss and abduction of the cords

Organic paralysis is seen in patients who occasionally show a spontaneous recovery within the first few months after operation The majority of those patients whose cords remain paralysed regain normal speech after a period of training

Bilateral Abductor Paralysis

Patients with bilateral abductor paralysis require surgical treatment

Immediate post operative paralysis This necessitates an early low tracheo tomy as a suddenly reduced airway is badly tolerated An inspiratory flap valve may be conveniently fitted to the cannula enabling the voice to be maintained

Delayed post operative paralysis This complication is usually of more gradual onset and the airway may be just adequate at rest The prognosis is however most uncertain

Tracheotomy should be carried out if any doubt of an adequate airway exists

Spontaneous recovery occurs in a small proportion (3 to 5 per cent) of these bilateral abductor lesions

Laryngoplasty to improve the natural airway should not be undertaken till at least one year has elapsed after the onset of paralysis The modern Kelly King (or Woodman modification) procedures have given good results although the quality of the voice is difficult to predict A permanent valved tracheotomy cannula with which good speech is ensured may be occasionally required The choice is difficult and each case must be carefully assessed on its own merits

Other operations such as nerve suture and various types of cordal resection have now been abandoned

TETANY

Prevention

Transient or mild tetany occasionally passes unnoticed Careful exposure recognition and protection of the important small and yet relatively easily recog nisable parathyroid glands is essential while planning the size and reconstitution of the residue

The practice of implanting an inadvertently excised parathyroid gland within the substance of the anterior border of the sterno mastoid muscle is accepted although its efficacy is not yet scientifically established

Treatment

Acute tetany may occur on the first or second day following operation Spasmophilia is characteristic Calcium gluconate given intravenously or intra muscularly in doses of 10 ml of 10 per cent solution repeated as necessary control the acute attack

Parathormone in doses of 1 to 2 ml has been used substituted where calcium gluconate has not been completely successful

Subsequent control with calcium lactate by mouth and the drinking of milk for a few days has usually diminished the irritability of the nervous system until the normal balance is regained

Practical Considerations

Partial recurrent laryngeal nerve involvement (1 and 2) is encountered most frequently following thyroidectomy Total recurrent laryngeal nerve paralysis (3 and 4) and superior laryngeal nerve paralysis (7) may occasionally occur Total combined laryngeal and superior laryngeal nerve paralysis (5 and 6) are most unlikely Functional vocal cord paralysis (8) may occasionally be encountered for a short period post operatively

In patients with bilateral abductor paralysis (2) it might be expected that both cords would lie in the median position thus causing asphyxiation This however does not occur since an inspiratory chink is maintained between the posterior ends of the cords due to the sagging forward of the arytenoid cartilages which are no longer braced backwards by the posterior crico arytenoid muscles The two cords may lie in slightly different planes acting as baffle plates and thus allowing further space for respiration This is obviously a precarious condition the patient s life being endangered by even mild exertion excitement or upper respiratory infection

Additional appearances noted in total recurrent laryngeal nerve paralysis (3 and 4) are paramedian position of the cord and loss of tone and bowing (concave inward) due to loss of function of the abductor and internal tensor muscles The position is maintained by the intact crico thyroid muscle

Differential Diagnosis

It is essential to distinguish paralytic from mechanical causes producing impediment of the vocal cords of which the most important are —

1 *Chronic inflammatory infiltration* of the inter arytenoid space the subglottic or supraglottic regions or the crico arytenoid joint (*e g* tuberculous laryngitis)

2 *Benign or malignant new growths* situated upon or invading these regions

Both the above types of lesion may be identified from the history local appearances and biopsy

3 *Ankylosis of the crico arytenoid joint* due to sequelae of infection trauma or osteoarthritis

This condition may be distinguished by the history an abnormal position of the affected cord absolute fixation of the arytenoid even on endoscopic manipulation presence of swelling or scarring around the arytenoid and normal position of the aryepiglottic fold

Routine pre operative examination of the larynx should be undertaken in all patients to avoid confusion if laryngeal sequelae develop

Treatment

An adequate airway is the basic consideration

Reassurance is usually the only requisite in most patients except those with a bilateral abductor paralysis

Functional cases of adductor paralysis sometimes seen immediately after operation respond rapidly to suggestion

Radioactive Iodine Ablation

Radioactive iodine therapy is partially reversible and destroys only part of the gland

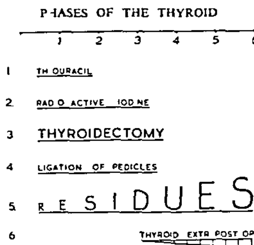


Fig 496

Pictorial Summary of Treatment

The relative scope of the six procedures enumerated is shown. *Thyroid ablation,* whether by medical radioactive iodine or surgical methods is required only for the initial three phases (as shown) unless the later phases are complicated by pressure phenomena. The size of the residue increases as the phases advance The need for post operative thyroid substitution therapy increases during the terminal three phases

Surgical Ablation

Thyroidectomy is irreversible and removes most of the gland

Given an adept and skilled surgical service the greater is the benefit from *surgical intervention which is undoubtedly still the ideal procedure* Thiouracil therapy has some scope in difficult recurrent thyrotoxicosis Surgery is indicated in the fibro lymphoid and fibrosis phases only for pressure phenomena The more advanced the phase the less vascular the gland and the less imperative the need for ligation of its vascular pedicles Furthermore the more advanced the phase the less frequently does recurrence occur and the greater is the residue which must be retained at operation In fact in fibrosis wedge resection of the isthmus to relieve pressure will suffice as the gland retrogresses spontaneously

These principles are illustrated pictorially in figures 497 to 502

Chronic tetany presents a very serious and occasionally an almost insoluble problem In addition to the other treatment already outlined di hydrotachysterol (A T 10) in doses of two capsules per day excels parathormone activity in facilitating the absorption of calcium into the blood Calciferol (Vitamin D) in doses of 100 000 units or more has proved very useful in refractory cases

THE INCISION

1 Subcutaneous Deposits of Serum

These are reputed to be more frequent following extensive use of foreign body material such as cat gut and have become more in evidence since the introduction of thiouracil drugs The collections are temporary and are soon absorbed Occasionally a single probe through the line of the incision is required

2 Oedema of the Incision Line and Adjacent Flaps

Occasionally sufficient to induce a temporary flexion of the head or even a torticollis the oedema is chiefly of lymphatic origin Treatment is symptomatic the discomfort being but of a temporary nature

3 Adherent Scar

This is prevented by asepsis careful suture of fascia and platysma and meticulous approximation of the skin margin Post operative massage disperses the oedema Intractable median adherent scars are excised

4 Keloid Scar

This hypertrophic scar usually diminishes with the passage of time Superficial low voltage X ray therapy is very effective in the chronic intractable keloid

LATE COMPLICATIONS

These have been discussed in detail [see hypothyroidism (page 388) cardiotoxic complications (page 250) exophthalmos (page 282) and localised oedema of the legs (page 339)]

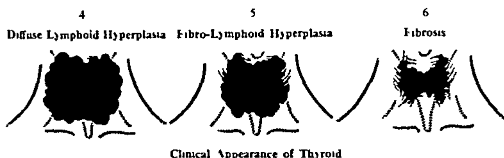
SUMMARY OF TREATMENT

As the six phases progress the need for medical or surgical intervention diminishes

The earlier the phase of epithelio lympho fibrosis progression that is the nearer to toxic epithelial hyperplasia the more urgent is the need for thyroidectomy (Fig 496) Subsequent pressure effects due to fibrosis at the terminal end necessitate only limited excision of the isthmus

Medical Ablation

Medical thyroidectomy by means of thiouracil is completely reversible and only neutralises the synthesis of the thyroid hormone



Clinical Appearance of Thyroid



Macroscopical Appearance of Thyroid



Operative Procedure

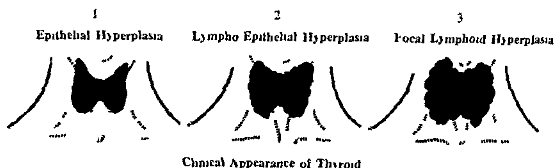
Fig 500 Fig 501 Fig 502

Treatment for the Six Phases

Fig 500 *Diffuse lymphoid hyperplasia* A yet larger residue is retained. The inferior thyroid arteries are not ligated Occasionally the superior thyroid arteries may be left intact

Fig 501 *Fibro lymphoid hyperplasia* A large residue is retained Both the inferior and superior thyroid pedicles are left intact

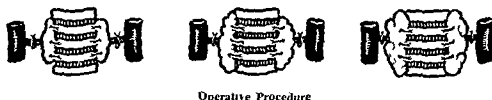
Fig 502 *Fibrosis* An isthmectomy is performed which lays the trachea bare The remainder of the gland with its blood supply is left intact



Clinical Appearance of Thyroid



Macroscopical Appearance of Thyroid



Operative Procedure

FIG 497 FIG 498 FIG 499

Treatment for the Six Phases

FIG 497 *Epithelial hyperplasia* The maximal amount of thyroid tissue is removed leaving the smallest residue Both the inferior thyroid arteries are ligated

FIG 498 *Lympho epithelial hyperplasia* A slightly larger residue is retained both inferior thyroid arteries being ligated

FIG 499 *Focal lymphoid hyperplasia* A still larger residue is left behind accompanied by the ligation of one or both the inferior thyroid arteries

TABLE XLIII *(continued)*

Indications	*Anti Thyroid Drugs*	*Radioiodine*	*Thyroidectomy*
Special indications (continued)	Mild thyrotoxicosis in a small diffuse goitre	Cardiotoxic in the elderly	Suspicion of malignancy
	Pregnancy after 6 months if well controlled Iodine is given for the last month	Technical difficulties (*a*) Unilateral recurrent laryngeal nerve paralysis	Patient unwilling to undergo protracted medical treatment
	Borderline case as a therapeutic test	(*b*) Tetany after a previous operation	Continued surveillance difficult e g change of residence For thiouracil (*a*) sensitive (*b*) relapsing (*c*) resistant
Complications			
1 Hypothyroidism	Reversible on discontinuing the drug	5 15 according to dose given	1 5
2 Toxicity flare up	Nil	Transient	Nil
3 Exophthalmos	Reversible	Partly reversible	Irreversible but relatively rare
4 Tetany	Nil	Nil	Less than 1
5 Vocal cord paralysis transient	Nil	Nil	1%
6 Recurrence	25% at least	30 or less	1%
7 Mortality	Nil	Nil	0 1 to 0 5
8 Sensitisation reactions	Agranulocytosis may be fatal	Irradiation sickness rare only in large doses	Nil with adequately detoxicated patient
9 Thyroiditis	—	Occasional but transient	—
10 Dosage control	Assiduous Continued follow up imperative	Difficult to assess Proportional to weight of goitre and toxicity	Not required
11 Subsequent complications	1 Haemorrhage friability and adhesions of thyroid at subsequent operation 2 Lengthens and complicates further radioiodine treatment occasionally	Fibrosis at subsequent operation	Complications due to faulty technique
Results			
1 Cure	Uncertain	More certain	Relatively certain
2 Cosmetic	Goitre increased in size	Goitre diminished in size	Goitre removed
3 Lag period before relief	1 2 months 12 18 months often required on maintenance dose	Relatively long 1 3 months	Short Few weeks
4 Recurrence of thyrotoxicosis	Common if drug is discontinued	Occasional	Very rare Less than 1

TABLE XLIII

COMPARISON OF DIFFERENT METHODS FOR TREATMENT OF HYPERTHYROIDISM

Indications	*Anti Thyroid Drugs*	*Radioiodine*	*Thyroidectomy*
Goitre			
1 Size	Small goitre—useful	Intermediate and small	Large goitre
2 Pathological state	Diffuse goitre—best	Diffuse rarely nodular	Nodular and diffuse
Toxicity			
1 Mild	Very useful	Moderately useful	Useful
2 Severe	Least useful as definitive measure	Moderately useful	Most useful
Pressure Symptoms	Never used	Occasionally used	Essential to operate
Recurrence			
1 Goitre	Occasionally useful	Most useful	Least useful
2 Toxicity	Less useful	Most useful	Useful
Exophthalmos			
1 False (Lid retraction)	Good but temporary	—	Good—permanent cure
2 True—Benign	Reversible also as a therapeutic test	Partly reversible according to dose	May increase irreversible
3 True—Malignant	Never	Never	Never
Psychotic and Emotional Instability	Useful occasionally if operation is not advisable	Useful in elderly	Useful occasionally
Age Periods			
1 Childhood	Best suited as a temporary measure	Never	Occasionally
2 Adolescence	Best suited as a temporary measure	Never	More frequently
3 Maturity	Useful	Only over 40 years	Most useful
Pregnancy			
1 First two months	Useful if mildly toxic	Never	Very useful
2 Second to sixth month	Useful	Never	Most useful
3 Sixth to ninth month	Preferably if well tolerated and controlled	Never	Less useful
Cardiotoxic			
1 Operable	Least useful	Useful	Very useful
2 Unsuited for operation	If younger	If over 40 years	
Malignancy suspected	Never used	Never used	Always operate
Special indications	For preparation of severely toxic patients for thyroidectomy	Refractory to anti thyroid drugs	Swift and relatively permanent cure
	Unsuitable for surgery (aged decompensated cardiac or renal conditions)	For cases unsuitable for surgery	For pressure symptoms (a) present or (b) potential
	Fear of surgery or radiotherapy	Multiple toxic recurrences in a small goitre	Multinodular goitre
	For temporary toxic flare of puberty pregnancy or menopause		Always for the single hard nodule

TABLE XLIII *(continued)*

Indications	*Anti Thyroid Drugs*	*Radioiodine*	*Thyroidectomy*
Special indications (continued)	Mild thyrotoxicosis in a small diffuse goitre	Cardiotoxic in the elderly	Suspicion of malignancy
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	Borderline case as a therapeutic test	(*b*) Tetany after a previous operation	Continued surveillance difficult *e g* change of residence For thiouracil (*a*) sensitive (*b*) relapsing (*c*) resistant
Complications			
1 Hypothyroidism	Reversible on discontinuing the drug	5 15% according to dose given	1 5
2 Toxicity flare up	Nil	Transient	Nil
3 *Exophthalmos*	*Reversible*	*Partly reversible*	*Irreversible but relatively rare*
4 Tetany	Nil	Nil	Less than 1%
5 Vocal cord paralysis transient	Nil	Nil	1%
6 Recurrence	25 at least	30 or less	1
7 Mortality	Nil	Nil	0 1 to 0 5
8 Sensitisation reactions	Agranulocytosis may be fatal	Irradiation sickness rare only in large doses	Nil with adequately detoxicated patient
9 Thyroiditis	—	Occasional but transient	—
10 Dosage control	Assiduous Continued follow up imperative	Difficult to assess Proportional to weight of goitre and toxicity	Not required
11 Subsequent complications	1 Haemorrhage friability and adhesions of thyroid at subsequent operation 2 Lengthens and complicates further radioiodine treatment occasionally	Fibrosis at subsequent operation	Complications due to faulty technique
Results			
1 Cure	Uncertain	More certain	Relatively certain
2 Cosmetic	Goitre increased in size	Goitre diminished in size	Goitre removed
3 Lag period before relief	1 - months 12 18 months often required on maintenance dose	Relatively long 1 3 months	Short Few weeks
4 Recurrence of thyrotoxicosis	Common if drug is discontinued	Occasional	Very rare Less than 1

TABLE XLIII *(continued)*

Indications	*Anti Thyroid Drugs*	*Radioiodine*	*Thyroidectomy*
Special problems			
1 Facilities	Minimal required Treated as out patient	Many specialised Bio physical Special centre	Operating facilities in a general hospital
2 Borderline cases	Therapeutic test very helpful	Tracer dose significant	Operation ill advised
3 Cardio toxic	Safe until toxicity fully controlled Then operate	Helpful	Operation when fully detoxicated by anti thyroid drugs
4 Pregnancy			
1 to 2 months	Thiouracil to detoxicate for operation	Contra indicated	Operate
2 to 6 months	Thiouracil if well controlled	Contra indicated	Operate if very toxic Conservative measures better if only mildly toxic
6 to 9 months	Thiouracil if well controlled	Contra indicated	No operation advised
5 Post partum	Mother well controlled before operation No suckling allowed by baby	Contra indicated	Thyroidectomy as soon as domestic conditions allow

REFERENCES

Doniach D (1953) *Lancet* **2** 873
Kelly J D (1941) *Arch Otolaryng Chicago* **33** 293
King B T (1939) *Trans Amer Laryng Assoc* **51** 264
Lawson A Barry G (1951) *Lancet* **2** 621
Lawson A Rimington C Scarle C E (1951) *Lancet* **2** 619
Maclagan N F Sprott W E Wilkinson T H (1952) *Lancet* **2** 916
Moore F D (1946) *J Amer med Ass* **130** 315
Piercy J E (1950) *Ann roy Coll Surg* **7** 358
Poate H R G (1953) *Lancet* **1** 879
Roche J Lissitzky S Michel (1952) *C R Soc Biol Paris* **234** 997
Seed L Jaffé B (1953) *J clin Endocrin* **13** 107
Van Winkle W Jun Hardy S M Hazel G R Hines D C Newcomer H S Sharp E A Sisk W N (1946) *J Amer med Ass* **130** 343
Williams R H Clute H M Arglerm T J Kerney F R (1946) *J clin Endocrin* **6** 23
Woodman D (1946) *Arch Otolaryng Chicago* **43** 63

APPENDIX I

TRANSLATION OF RIEDEL'S THREE ORIGINAL CONTRIBUTIONS

CONTRIBUTION 1

CHRONIC INFLAMMATION LEADING TO IRON HARD TUMOUR OF THE THYROID

BY

PROF B M C L RIEDEL

Verhandlungen Der Deutschen Gesellschaft fur Chirurgie
Vol 25 p 75 1896

Chronic Inflammation Leading to the Iron Hard Tumour of the Thyroid

I referred at the beginning of this year in the *Berlin Medical Journal* to some curious cases of chronic inflammation of the pancreas The pancreas became as large as a fist with displacement of the bile duct Relief was obtained by connecting the gall bladder directly to the intestines The tumour became smaller These cases are now two years old and I am quite sure that it was not carcinoma but chronic inflammation which led to the formation of the enormous tumours

I can now say something similar about the thyroid gland I would like to describe a particular case on whom I operated in 1883 A 42 year old man came to consult me because of his thyroid gland which had been swollen for about six months accompanied by definite dyspnoea On examination I found a moderately large growth extremely hard immovable and bilateral I presumed it was a malignant growth and tried to remove it by operation

I exposed the tumour and saw that it was present on both sides having grown firmly adherent to the carotid artery and the internal jugular vein I resected a part of internal jugular vein and stopped after having then removed from the goitre a piece the size of a walnut as I expected that this was an inoperable case of carcinoma The post operative period presented no complications (operation 30th November 1883 on 17th December 1883 discharged with clean wound) The patient came from time to time and was pleased Dyspnoea had ceased After six months he declared himself to be normal and healthy again and resumed work

The biopsy meanwhile showed that there was no evidence of new growth *It appeared in fact to be an inflammatory process Infiltration of round cells was* evident Carcinoma and sarcoma were excluded The patient did not suffer from syphilis or tuberculosis It was twelve years before I made this case public as I was too surprised by it In the meantime I had operated on 300 more goitres but not on any similar case until last summer when a healthy young woman came to me for advice She too had a goitre which had given no complications previously

The patient observed that her neck had become enlarged since the beginning of the year The goitre had rapidly become rather hard and firm during the previous eight to ten weeks The patient could do her housework but any additional strain caused some palpitation as well as dyspnoea and later dysphagia

On examination the right side showed a tumour the size of an egg and the left side showed one the size of a small apple It was very hard and could be moved with the trachea The pharynx was in the midline and the vocal cords functioned normally She had a goitre voice and some bronchitis involving the lower lobes The pulse was 90 beats per minute

The operation had to be discontinued owing to the extensive adhesions between the tumour blood vessels and nerves One could not contemplate removing the tumour The result was the same as she died within three months previously the

other symptoms improved and she felt well until one day she went out of the house to the yard and suddenly became ill stating that she felt sick She collapsed and died immediately Autopsy was performed as was not done in the first patient

I formed the impression that the patient died of an embolism In both instances we had to deal with a chronic inflammation of the gland

If you look at the microscopic preparation you will see interwoven between normal thyroid tissue a collection of groups of round cells by which the normal tissue had been more or less replaced You would have no idea when looking at the sections how firm the tumour was You would have expected to find hard fibrous tissue but as has already been said you will only find collections of round cells Before the operation you would find that the tumour feels even harder The explanation for this is that the growing tumour completely surrounds the soft structures such as blood vessels nerves and trachea These adhesions produce a tough and leathery consistency They bleed profusely making resection of the tumour impossible The large blood vessels (carotid and jugular) appear as if walled off One can only cut them above and below the tumour but cannot liberate them from the growth The nerves can not be found at all or only with great difficulty The trachea is soft and one gets the impression that it has been almost perforated Even the most malignant tumour can be removed with greater facility than such a chronic inflammatory mass

I regret having no sections but microscopic examination of the preparations and the clinical course should be adequate to ensure that there is no possibility of malignancy

I shall not exclude the possibility that in both my patients infection might have spread from the inflammatory thyroid tumours to the internal organs which may have led to death The four cerebral haemorrhages of the first case gave me scope for thought and should not be passed unnoticed especially when the age of the patient is taken into consideration Locally neither of these patients had a visible enlargement of the goitre as only one fifth of the tumour was removed In spite of this excision the growth of the tumour discontinued and the dyspnoea disappeared An explanation of this seems impossible at present Only one proof exists namely that the enlargement of the tumour stopped The knowledge of this fact is important for the treatment of similar cases One should operate but be prepared to desist at the correct moment By continuing with the operation both patients would have suffered permanent severe injury to nerves and blood vessels and would eventually have died After two hours I discontinued the operation on the first patient after ligating the jugular veins

In the second case the inflammation became obvious much more quickly and I stopped before injuring the large vessels Unfortunately I injured the nerve and the patient showed a paralysis of the corresponding vocal cord after operation which was not at all necessary The future will decide whether there is any other treatment than partial extirpation of the tumour for this particular condition

The second case was treated with iod alkali by mouth and iodine ointments externally but without success Thyroid extract in tablet form was also given It appears that for the time being only partial excision of the tumour has any effect on the inflammatory process *

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* *At the end of the meeting a fellow member by name Cordua of Hamburg told me* that about 17 years ago he tried to resect a tumour in the case of a twelve year old girl He also had to discontinue the operation as the tumour had grown very firmly adherent to the surrounding tissues The child recovered and is still living A record of the case will be published shortly

Conclusion Naturally I enquired after these patients and after much trouble I found out what happened to the first patient He felt well for three quarters of a year He never became dyspnoeic again but suffered from nephritis and died 1½ years after the operation His son wrote to me personally stating that right from the start the operation had been a success Unfortunately the patient became nephritic and had several cerebral haemorrhages—four in all The last attack of apoplexy was fatal The son did not consider that the operation had been an additional factor in his father s death

The second patient felt just as satisfactory and her dyspnoea had steadily improved

CONTRIBUTION 2

Verhandlungen Der Deutschen Gesellschaft fur Chirurgie

Vol 26 p 127 1897

On introducing a patient with chronic thyroiditis last year I demonstrated a specimen which had a peculiarly hard nature The microscopical examination and the clinical progress of the case showed that it was not a new growth of the thyroid in the narrow sense of the word but a chronic inflammation

Just after my lecture my friend Cordua from Hamburg told me that he had operated on a similar case a thirteen year old girl who had an equally hard struma as had my twenty three year old patient Cordua discontinued the operation as I had had to do in spite of which the child recovered

In the summer of 1896 Dr Tailhefer Chief of the Surgical Clinic of the Faculty of Medicine of Toulouse told me that he had observed a similar case

It is a coincidence that I am in a position to day to introduce a patient to you with an iron hard struma This struma is of an inflammatory nature It is no new growth in the narrow sense of the word

This twenty nine year old patient was completely healthy until the beginning of May 1896 He had not suspected the existence of his thyroid At that time he noticed a small hard swelling on the right side at the same height as the larynx This enlarged during the next four weeks in such a way that first the right side of the neck became harder then the firm swelling grew extending to the middle line towards the left side only to develop there in the same way as on the right side Approximately six weeks after the onset of the complaint the growth had developed to the size it is to day Soon the patient became very dyspnoeic Iodine calc was used without any success In the middle of July the patient was seen in the Clinic On the 21st of July an attempt was made to remove the goitre but without success as it was inseparable from the surrounding tissues and nerves I removed a piece of thyroid the size of a walnut which was grey white mostly hard though slightly softer in some places I then stopped the operation because it became clear during the operation that its pathology was chronic thyroiditis and not new growth

Examination of the growth showed that it consisted of spindle and round cells It was doubtful whether it was inflammatory tissue or new growth (fibrosarcoma) Only further investigation of the clinical course could decide It turned out to be chronic inflammation

other symptoms improved and she felt well until one day she went out of the house to the yard and suddenly became ill, stating that she felt sick. She collapsed and died immediately. Autopsy was performed, as was not done in the first patient.

I formed the impression that the patient died of an embolism. In both instances we had to deal with a chronic inflammation of the gland.

If you look at the microscopic preparation you will see interwoven between normal thyroid tissue a collection of groups of round cells by which the normal tissue had been more or less replaced. You would have no idea, when looking at the sections, how firm the tumour was. You would have expected to find hard fibrous tissue but, as has already been said, you will only find collections of round cells. Before the operation you would find that the tumour feels even harder. The explanation for this is that the growing tumour completely surrounds the soft structures such as blood vessels, nerves and trachea. These adhesions produce *a tough and leathery consistency. They bleed profusely, making resection of the* tumour impossible. The large blood vessels (carotid and jugular) appear as if walled off. One can only cut them above and below the tumour but cannot liberate them from the growth. The nerves can not be found at all or only with great difficulty. The trachea is soft and one gets the impression that it has been almost perforated. Even the most malignant tumour can be removed with greater facility than such a chronic inflammatory mass.

I regret having no sections, but microscopic examination of the preparations and the clinical course should be adequate to ensure that there is no possibility of malignancy.

I shall not exclude the possibility that in both my patients infection might have spread from the inflammatory thyroid tumours to the internal organs which may have led to death. The four cerebral haemorrhages of the first case gave me scope for thought and should not be passed unnoticed, especially when the age of the patient is taken into consideration. Locally neither of these patients had a visible enlargement of the goitre, as only one fifth of the tumour was removed. In spite of this excision the growth of the tumour discontinued and the dyspnoea disappeared. An explanation of this seems impossible at present. Only one proof exists, namely that the enlargement of the tumour stopped. The knowledge of this fact is important for the treatment of similar cases. One should operate but be prepared to desist at the correct moment. By continuing with the operation both patients would have suffered permanent severe injury to nerves and blood vessels and would eventually have died. After two hours I discontinued the operation on the first patient after ligating the jugular veins.

In the second case the inflammation became obvious much more quickly and I stopped before injuring the large vessels. Unfortunately I injured the nerve and the patient showed a paralysis of the corresponding vocal cord after operation, which was not at all necessary. The future will decide whether there is any other treatment than partial extirpation of the tumour for this particular condition.

The second case was treated with iod alkali by mouth and iodine ointments externally but without success. Thyroid extract in tablet form was also given. It appears that, for the time being, only partial excision of the tumour has any effect on the inflammatory process.*

* At the end of the meeting a fellow member, by name Cordua of Hamburg, told me that about 17 years ago he tried to resect a tumour in the case of a twelve year old girl. He also had to discontinue the operation as the tumour had grown very firmly adherent to the surrounding tissues. *The child recovered and is still living.* A record of the case will be published shortly.

These remarks are very appropriate all the more so since [illegible] exists which has sustained the test of fifteen years observation [illegible] the formation of an extremely hard tumour due to chronic inflamm[illegible] of the condition which I have described

The microscopical examination of the partial extirpation of the tumo[illegible] I performed on my first patient is definite proof The patient lived [illegible] after the operation The goitre recurred but the man who was pr[illegible] died of nephritis But even more definite is the case of the pati[illegible] the Surgical Congress in 1897 On the 14th August 1910 he showed [illegible] be quite a healthy man His clinical history is so interesting that I w[illegible] it in more detail

A M 29 years of age was admitted on July 10th 1896 At t[illegible] of May 1896 he was in completely normal health He had no suspicio[illegible] of any (thyroid) goitre But at that time he noticed a small hard swe[illegible] level of the larynx In the space of four weeks it developed in such [illegible] first of all the right side of the neck became harder Then the swelli[illegible] midline to the left side to develop there to the same dimensions as on t[illegible] side Approximately six weeks later the mass was the size of a ma[illegible] patient had severe dyspnoea and suffered from attacks of nocturnal suff[illegible]

On the 21st of July I tried to remove the extraordinarily ha[illegible] adherent to the surrounding tissue but interrupted the operation as the b[illegible] and nerves were embedded in the tumour Only a piece the size of a walnut [illegible] removed from the thyroid which was grey white mostly hard but softer in places It became clear that this was a case of chronic strumitis and not of neoplasm The wound healed quickly but the dyspnoea remained The patient went h[illegible] Fowler s solution was given He returned about Christmastime He appeared in cyanosed condition and coughed frequently He again suffered from attacks of suffocation at night When masses of mucus collected below the stenosed part of the trachea he almost seemed to succumb

Therefore on January 11th 1897 a wedge excision of about 2 3 cm was made in the isthmus in order to relieve compression on the trachea The patient recovered slowly The dyspnoea remained but the nocturnal attacks of suffocation ceased He spoke in a rough and hoarse voice but the vocal cords appeared to be normal on examination The growth diminished in size after nine months The scar was sunk deeply and had been overgown by the skin Attacks of dyspnoea continued and the patient was unable to work

In the middle of 1901 the trouble ceased The man s working capacity returned and he was able to take up employment in a furniture removal firm

At the beginning of January 1905 he felt unwell for four days Then a profuse haematemesis of more than one pint of blood occurred The patient was given an ice pack to the epigastrium for fourteen days He was given ice to suck He lay in bed for three months The old dyspnoea returned and continued for four years especially at night so that he could not sleep in bed At the beginning of 1909 there was an improvement so that he could work again as a woodcutter Now he cuts approximately $1\frac{1}{2}$ festmeter per day He is not able to stoop as he then feels giddy

At the moment there is no proof of the existence of a goitre The patient is emaciated but strong Examination of the larynx and trachea shows a considerable area of stenosis of the subglottic space of trachea 17 cm beyond the teeth The right wall bulges into the lumen The left prominence is sharp edged with a cord like projection The vocal cords move normally

The wound healed very quickly and the patient was discharged on the 8th August He was treated with Fowler s solution The dyspnoea continued Towards Christmas he had so many attacks of nocturnal dyspnoea that he was again sent to the Clinic He appeared to be very cyanosed and coughed frequently during the night Mucus accumulated behind the stricture This produced attacks of suffocation which nearly caused the patient s death

Therefore on the 11th January 1897 an attempt was made to provide an airway A section of 2 3 cm was cut out of the isthmus of the gland covering the trachea It was possible to wedge the excision in the shape of a groove or channel

The patient recovered slowly The dyspnoea remained but the nocturnal attacks of suffocation ceased At that time he could breathe deeply but slowly The vocal cords were normal although speech was harsh As already indicated the growth had not developed any further since June of last year It has even become smaller since the removal of the two pieces each the size of a walnut

The scars in the neck have sunk and have grown very tightly together The case has at present not run its course so that it is not possible to make a definite statement about it If it was a very malignant new growth it could be so assessed by the rapidity of its progress It would be obvious that the growth had not become larger within the past nine months A malignant growth is in the habit of developing considerably in a period of nine months

In this instance as well as in the last two cases (compare the cases reported in *Verhandlungen Der Deutschen Gesellschaft fur Chirurgie* 1896 Translation I) the growth attained its maximum size within a very short time and remained so There is no doubt that this indicates an inflammation

Billroth also mentioned the problem in the publication of his cases Scirrhus of the Thyroid Gland (*Wein Med Wschr* 1880 No 2) whether it was neoplasia or chronic inflammation

The clinical course of the Billroth s case speaks throughout for uninterrupted new growth and secondary swelling of the thyroid A parallel between Billroth s and my cases exists only in that the tumour in his case was also very hard otherwise they are completely different from each other

CONTRIBUTION 3

Munchener Medizinische Wochenschrift
Vol 57 p 1946 July December 1910

On the Course and Result of Chronic Thyroiditis

A short time ago Silatschek added a new case observed at Innsbruck to the seven cases of iron hard struma already known At the same time he said —

I should like to mention that von Eiselsberg specially mentioned the case of Tailhefer in which in spite of the absence of epithelial elements the possibility of a scirrhus (carcinoma) of the thyroid gland should not be overlooked As a comparison he cites scirrhus (carcinoma) of the stomach where only further clinical study determines the diagnosis

The possibility of single isolated cases of chronic strumitis cannot be disputed fibrous tissue is found in the majority of sections yet a scirrhus (carcinoma) may be overlooked since there had been no observations over a considerable period of time But in the majority of cases so far quoted there is no doubt that a pure chronic inflammation and not a malignant neoplasm had been present

APPENDIX II

TRANSLATION OF HASHIMOTO'S ORIGINAL CONTRIBUTION

ON THE KNOWLEDGE OF LYMPHOID CHANGES IN THE THYROID

BY

DR K HASHIMOTO
Assistant to Surgical Clinic of the University of Kyushu Japan
directed by Prof Dr H Miyokee

(*Archiv fur Klinische Chirurgie* 97 219 1912)

By the expression lymphomatous changes in the thyroid I mean a prolifera tion of lymphoid elements associated with the formation of lymphoid follicles and certain changes in the parenchyma and interstitial tissue which one can observe in excised thyroid tissue Such findings excited my interest and made me work on the following subject

During six years I observed four cases of this kind in our hospital and I would like to call it Struma Lymphomatosa and because this condition has not as far as I know been noted in literature I would like to describe it in greater detail

The lymphoid tissue exists in two forms —the diffuse form such as in many *mucous membranes especially in the alimentary canal the lung the trachea the* urethra the sexual organs in the conjunctiva the red bone marrow and the salivary gland in a different manner it usually forms the fundamental structure of lymphatic glands

The simplest forms of the lymphoid organs are the so called noduli lymphatici solitarii These peripheral lymph nodes can be compared with the so called cortical nodules which exist in the cortex of the lymph nodes

The lymph nodes have a size of about 0 5 to 2 5 mm and form rounded collections of lymphoid elements in the form of nodules The reticulum of the *follicle has a somewhat denser structure at the periphery and according to* v *Elsner* contains elastic fibres

The lymphoid cells are often arranged in such a manner as to form concentric rings There is a rounded space in the middle of the follicle in which the cells are not as close together as at the periphery This is called the germinal centre or secondary nodule Particular cell formations are seen in the germinal centre One variety contains a larger pale nucleus in the relatively well developed proto plasm Surrounding these we find many cells in mitotic division According to Flemming this collection of cells is a source of formation of leucocytes In the peripheral part of the follicle the cell body is faint and the nucleus is intensely stained The nutrition of the follicle is effected by a rich but frail vascular mesh This indicates that the centre has no such network

There is no complete agreement regarding the lymphatic vessels in the lymph follicle According to Roulser they pass through the lymph nodes and are perhaps in open communication with the adenoid substance

A typical case is that of a youthful individual with a subacute swelling and hardening of the thyroid Intense dyspnoea occurs shortly after without pyrexia or infection Microscopy provides the proof There is a heaping up of spindle and round cells between the normal elements of the goitre The latter becomes more and more displaced A small degree of endarteritis is seen as in many other chronic inflammatory processes

The rapid development of immature fibrous tissue is noticeable it is analogous with the development of ordinary scar tissue It is remarkable that this condition has not yet been observed more frequently I have only seen three patients The last one was the one described above who was operated on fifteen years ago Since then I have frequently had to deal with goitres Either they were calcified or malignant 1 064 benign goitres which have been operated on here are compared with three chronically inflamed ones This number is actually not large when it is remembered that only one case (Cordua) was published in the whole of Germany What happened to this one cannot be related since the author died

Silatschek s patient was cured spontaneously Perhaps this spontaneous healing provides the solution for the rarity of these cases as it is possible that in some patients the illness develops only to a certain extent and then retrogresses spontaneously There is no reason for them to present themselves (to the physician) It is possible for the practitioner to see those cases occasionally The patient will seek surgical help only when the inflammation develops in the whole thyroid gland and dyspnoea intervenes Operation can be restricted to a wedge excision extending to the trachea In spite of profuse haemorrhage the procedure is possible as the vessels have a small calibre (owing to their endarteritis)

Unilateral excision of a lobe is completely impossible as the internal jugular vein carotid artery and vagus nerve are inseparably intermixed with the growth If the isthmus of the thyroid is too broad then tracheotomy is also impossible Superior tracheotomy does not succeed because the thyroid cannot be separated from the trachea The inferior operation fails as there is insufficient room above the manubrium sterni

The diagnosis of malignancy was made

At operation (2 7 09) Chloroform was used and Kocher s incision was made The gland was found to be large and of the generalised solid con sistency of a malignant tumour The penetration of the capsule of the thyroid resulted in a great deal of haemorrhage Both lobes were excised—the right 6 × 3 5 × 2 5 cm and the left 5 × 3 2 × 2 cm Section of the gland showed fine granulations and a lobular structure

Progress No complication occurred after operation The patient left hospital on the 19th July apparently cured Her appetite was good The colour of her skin was anaemic The residue remained constant in size On 27 1 11 she returned to the hospital for post operative consultation About three quarters of a year after the operation the patient became weak and could not work From the beginning of 1910 her strength improved and the patient started work again The colour of her skin was pale and her appetite normal The remainder of the tumour which one could feel when she left the hospital had disappeared Many eggs of ankylostoma were present in the faeces These disappeared following the use of thymol and naphthalene The Wasserman reaction and tuberculin tests were negative

Case No 3, 19 6 05 A female aged 55 years who had had a premature child birth was in good health Syphilis was denied A month previously she discovered a lump in the front of her neck its size did not increase She complained of a feeling of tightness in the neck and sometimes of slight earache

Presenting state She was slightly anaemic The tumour corresponded exactly with the thyroid The right lobe was the size of a hen s egg the left lobe resembled the egg of a pigeon The whole gland took the shape of a horseshoe it was not painful on pressure being generally solid adherent to the trachea and mobile under the skin and connective tissue The rest of the patient was normal

The diagnosis was that of struma fibrosa

The operation (20 6 05) was performed under chloroform anaesthesia A Kocher s incision was used The right lobe was the size of a hen s egg it was very solid and swollen like a tumour The left lobe like the egg of a pigeon had a similar consi tency Resection of both lobes was performed The structure very closely resembled that of the second case

Progress She had a husky voice and complained of slight pain on deglutition There was a sense of constriction in the neck The general condi tion of the patient was affected The scar healed by first intention Her husky voice improved She felt well and left on 7 7 05 healed One could still palpate the solid residue of the tumour in the neck which had been left intentionally during the operation Anaemia and slight huskiness of the voice persisted She was examined on the 30 3 11 $5^3/_4$ years after the operation General weakness and lack of appetite had persisted for a certain time The patient felt exceptionally cold and weak during the winter

In 1906 generalised oedema occurred all over the body punctuated by remissions and exacerbations Her general condition had improved since 1907 The oedema improved considerably after use of thyroid preparations by mouth

Her present condition Nutrition has remained normal She is not anaemic Her voice is only slightly husky There is no albumin in the urine Nothing abnormal is seen in the thyroid

The nerve fibres do not pass directly into the follicle except in those instances where they are accompanied by blood vessels The solitary follicle is accompanied by a rich vascular network which according to His extends sometimes in sinusoidal formations

In the pathological cases such as inflammations tumours leukaemias and aleukaemic leukaemia etc the lymphatic tissue proliferates in different organs In the leukaemic and aleukaemic leukaemia these consist of large hyperplastic proliferations of the lymphatic tissue of the lymphatic glands as so called lymph omas in the different organs—for instance in the kidneys the skin the peritoneum the dura the heart the intestine the mouth the lacrimal glands etc Perhaps similar changes could also exist in my cases

Kocher and Howeld von Basedow and von Hedinger have already found lymphocyte foci in struma sarcomatosa sometimes with germinal centres in the thyroid

The histories of our cases are shortly as follows —

Case No 1, 21 11 07 A female aged 61 years Her father died of apoplexy There are no other hereditary factors Her health had always been good having suffered from no unusual disease Only seven months before the patient found a tumour in the median part of the neck which had since not increased in size She had recently suffered from insomnia and palpitations

Present history There were then no obvious signs of Basedow s disease The thyroid swelling had a horseshoe form somewhat larger than a hen s egg It moved on deglutition and was not sensitive to pressure It was somewhat solid attached to the trachea but mobile under the skin and surrounding interstitial tissue Nothing abnormal was found in the lymphoid tissues or bones

The diagnosis was that of struma parenchymatosa

Operation (22 11 07) was performed under chloroform anaesthesia The incision was slightly curved Subcapsular resection of both lobes was performed The capsule of the goitre was penetrated without any difficulty or much bleeding The excised tissue was somewhat solid

Further progress A slight pyrexia of 38 C occurred She was fatigued The drainage tube and ligature were removed after a week The scar healed by first intention The voice was slightly husky after operation According to a letter on 7 3 11 the patient was well and had no recurrence of the goitre

Case No 2, 30 5 09 A female peasant aged 40 years of healthy family had had smallpox when 2 years old and leucorrhoea for 20 years Forty days before the patient observed a painless tumour near the cricoid cartilage which had not increased in size The voice had been husky for one month Headaches and loss of appetite were present occasionally

Present state She is somewhat anaemic A tumour horseshoe in shape is present in the median aspect of the neck showing two lobes and a connecting part Right lobe is $7 \times 3 \times 5$ cm left lobe $5 \times 5 \times 4$ 5 cm The base is 6 5 cm It is not sensitive to pressure It is remarkably solid finely granular and moves upwards on deglutition It is difficult to move it on supporting the structures of the neck no other adhesions were found or any involvement of bones or glands

Later after the operation there was a generalised oedema which disappeared after the exhibition of thyroid preparations It should be emphasised that in our hospital in other instances of benign struma the post operative progress showed no obvious complications except that in these four cases there was always a long convalescence until the previous healthy state had been regained In one case (Case No 4) there seems to have been a recurrence of the struma which however reverted to a small size

Histological Findings

Conservation —(Nos 1 3 4)	alcohol 90 per cent
(No 2)	formol 10 per cent

A small excised piece was put into celloidin and slides were then prepared Haematoxylin and Eosin and van Giesen stains were used as well as Weigert s stain in special cases

All four cases show anatomico pathological findings of the same nature especially Nos 2 and 3 with very interesting features No 4 shows the most marked features There is a parenchymatous degeneration and round cell infiltra tion Cases Nos 2 and 3 show a remarkable extent of infiltration by lymphoid follicles I would like to study cases 2 and 3 specially because they give an excep *tionally characteristic picture of the disease Case No 4 shows a somewhat different* picture from the three others but the interpretation of this can only be that of a more advanced change

We can see various remarkable changes microscopically but especially a striking increase of lymphoid follicles a diffuse increase of the gland follicles and connected with this the formation of new connective tissue

The *lymphoid follicles* are found especially at the periphery of the excised gland tissue They are within the lobules as well as in the interstitial tissue isolated or closely packed together The shape and size of the lymphoid follicles is very inconstant being mainly polygonal spindle shaped round or irregular Generally they possess a well *demarcated germinal centre* in which we find a characteristic form of cell which generally has a faintly coloured vacuolated cell body The shape of the nuclei of these cells is very varied in our preparations — oval round triangular or quadrangular rhomboid crescentic or irregular There are always large and small lymphocytes (the large ones are more numerous) in the germinal centre Their nuclei are strongly stained with one to four exceptionally well differentiated granular bodies Here and there we see capillaries with endo thelial cells and reticular cells We find solitary plasma cells with eccentric nuclei and a typical network of chromatin In the rest we see in the germinal centre strongly stained by haematoxylin very small round bodies which probably corres pond to what Flemming called stainable corpuscles There are mitotic figures in the germinal centre

The broader zone of the lymphoid follicle is formed by reticular connective tissue and contains in its meshes lymphocytes which are packed closely together Here we also find the endothelial cells of the capillaries another type of cell which seems similar to those of the germinal centre and many small lymphocytes The lymphocytes near the germinal centre are arranged in an orderly pattern in parallel rows and surround reticular cells Elastic fibres are very infrequent

The size of the vesicles differs according to the case In case No 1 the vesicles are generally large but in the fourth case they are small The size of the vesicles varies from 30 to 360 μ

Case No 4, a female aged 45 years a widow was first seen on 19 9 07 No serious disease was present and venereal disease was denied Three days previously the patient had discovered a tumour in the antero median aspect of the neck which had not grown since and had produced no discomfort

The presenting condition She was tall solidly built and anaemic The tumour was in the neck below the cricoid cartilage the size of a hen s egg horseshoe shaped moving upwards on swallowing without pain on pressure It was fixed strongly on support but mobile on surrounding tissues The lymph nodes were not enlarged The rest of the patient was normal

Diagnosis Struma fibrosa

Operation was performed 20 10 07 under chloroform anaesthesia The thyroid was of very solid consistency The penetration of capsule was difficult and resulted in abundant haemorrhage Resection of both lobes and of the isthmus was performed The excised tissue corresponded to the second case

Further progress Only slight attacks of coughing with expectoration occurred She left hospital on 13 10 in the following state —her skin was pale and appetite was good part of the goitre was still palpable Examination was repeated on 10 3 11 ($3^1/_3$ years after operation) After she left hospital she complained of continual fatigue Slight oedema was occasionally seen in her face A small swelling of thyroid seems to have appeared in the summer of 1910 without any other symptoms but it regressed spontaneously

Present state Her nutrition is normal Slight anaemia is accompanied by a slightly husky voice In the neck one can feel both lobes enlarged these lobes of the thyroid are not sensitive to pressure but are solid

Clinical Summary

Four patients all women and over 40 years were observed Their families were healthy and did not live in goitre regions No history of familial goitre was obtained No particular mode of life was noted No previous diseases especially serious infections which are often followed by diseases of the thyroid particularly strumitis were observed Syphilis and tuberculosis could be excluded clinically

The increased size of the thyroid was discovered in all cases by chance The patients did not complain of any symptoms With good general health and normal body temperature we found an increased size of the thyroid which was not particularly rapid in growth Both lobes were always affected The size of the tumour changed Serious symptoms of compression such as dyspnoea or dysphonia never existed Only in one instance was there a slightly husky voice before operation One could then see incomplete closure of both vocal cords which could be explained by insufficient action of the interarytenoid muscle

No infection was visible in the thyroid The tumour was rather discrete but the consistency was generally so solid that one would expect the existence of a malignant tumour or strumitis of Riedel No enlarged lymph glands were found anywhere in the body There was nothing abnormal in the internal viscera The operations did not demonstrate such dense adhesions to the surrounding tissues as one would find in the struma of Riedel The latter author strongly insisted on this criterion In all instances there was post operative huskiness of different degrees but always to a very slight extent

Later after the operation there was a generalised oedema which disappeared after the exhibition of thyroid preparations It should be emphasised that in our hospital in other instances of benign struma the post operative progress showed no obvious complications except that in these four cases there was always a long convalescence until the previous healthy state had been regained In one case (Case No 4) there seems to have been a recurrence of the struma which however reverted to a small size

Histological Findings

Conservation —(Nos 1 3 4) alcohol 90 per cent
(No 2) formol 10 per cent

A small excised piece was put into celloidin and slides were then prepared Haematoxylin and Eosin and van Giesen stains were used as well as Weigert s stain in special cases

All four cases show anatomico pathological findings of the same nature especially Nos 2 and 3 with very interesting features No 4 shows the most marked features There is a parenchymatous degeneration and round cell infiltra tion Cases Nos 2 and 3 show a remarkable extent of infiltration by lymphoid follicles I would like to study cases 2 and 3 specially because they give an excep tionally characteristic picture of the disease Case No 4 shows a somewhat different picture from the three others but the interpretation of this can only be that of a more advanced change

We can see various remarkable changes microscopically but especially a striking increase of lymphoid follicles a diffuse increase of the gland follicles and connected with this the formation of new connective tissue

The lymphoid follicles are found especially at the periphery of the excised gland tissue They are within the lobules as well as in the interstitial tissue isolated or closely packed together The shape and size of the lymphoid follicles is very inconstant being mainly polygonal spindle shaped round or irregular Generally they possess a well demarcated germinal centre in which we find a characteristic form of cell which generally has a faintly coloured vacuolated cell body The shape of the nuclei of these cells is very varied in our preparations — oval round triangular or quadrangular rhomboid crescentic or irregular There are always large and small lymphocytes (the large ones are more numerous) in the germinal centre Their nuclei are strongly stained with one to four exceptionally well differentiated granular bodies Here and there we see capillaries with endo thelial cells and reticular cells We find solitary plasma cells with eccentric nuclei and a typical network of chromatin In the rest we see in the germinal centre strongly stained by haematoxylin very small round bodies which probably corres pond to what Flemming called stainable corpuscles There are mitotic figures in the germinal centre

The broader zone of the lymphoid follicle is formed by reticular connective tissue and contains in its meshes lymphocytes which are packed closely together Here we also find the endothelial cells of the capillaries another type of cell which seems similar to those of the germinal centre and many small lymphocytes The lymphocytes near the germinal centre are arranged in an orderly pattern in parallel *rows and surround reticular cells* Elastic fibres are very *infrequent*

The size of the vesicles differs according to the case In case No 1 the vesicles are generally large but in the fourth case they are small The size of the vesicles varies from 30 to 360 μ

The form of small or moderately sized vesicles is generally round or oval but the large ones are irregular The proportion of vesicles of different size is difficult to estimate It is related to the state of the interstitial tissue and infiltration by round cells In the instance where there is much interstitial tissue or infiltration of round cells a majority of small vesicles is seen This is especially so in case No 4 where the smallest vesicles are predominant Very small vesicles of about 30 μ are placed irregularly between the epithelial cells so as to hide their identity These aforementioned vesicles are seen in cases 1 2 and 3 and are accompanied by proliferating interstitial tissue

Disseminated epithelial cells are dispersed in the hyperplastic connective tissue either generally in a group or singly These cells are easily recognized by their size shape and configuration of the nucleus

The form of the cells of the vesicles is flattened if the vesicle is filled with colloid cubical if less strongly filled cylindrical if the vesicle contains only minimal colloid substance or instead of colloid some abnormal content Only in case No 1 are vesicles filled with colloid disseminated all over the tissue in the other cases we found vesicles characterised by a cubical or cylindrical shape

The epithelium of the lining of the follicle is composed chiefly of a single layer The protoplasm of these cells is sometimes well stained and occasionally it takes a faint stain The nucleus in cylindrical cells is situated at the base in the cubical cells in the centre The nuclei are mostly oval or round with fine and abundant granules and one to four nuclear bodies In the cell body and between the cells we find here and there small migrating mononuclear leucocytes which occasionally become oblong or oval In the epithelial cells we see areas stained black by means of Flemming s solution and faintly red by Sudan III or Scharlach red They could be the structures which Erdheim described in detail in normal and pathological thyroids and interpreted as fat granules These granules also occur in the epithelial cells of the common follicles as in the cells arranged in masses In the first kind of cells these granules are in the central part of the cells The outline of the follicles is not at all well defined except in some sites

The colloid substance of the vesicles is very varied in our cases Certain follicles are so filled with colloid substance that the lining epithelium becomes very flat *The vacuoles are the result of coagulation of the colloid* and can be demonstrated especially at the periphery of the follicle The stain of the colloid is different according to the section examined The colloid is well stained in the well conserved vesicles but in others where the epithelium of the follicle is very modified the colloid stains but weakly In those cases one finds in the vesicles groups of dirty eosinophil granules instead of well stained homogenous eosinophil colloid One can say generally speaking that the colloid substance is greatly modified in some of these follicles it has disappeared almost completely The colloid substance could be demonstrated in case No 1 in the lymphatic vessels which were filled with it in the other cases we could not find it in the lymphatic vessels neither in the arteries nor in the veins

We can see in the vesicles in addition other atypical elements which are especially abundant in those poor in colloid These elements are made up of epithelial cells leucocytes and their derivatives and fragmented masses Epithelial cells are here poorly constituted almost like a normal wall epithelium with a well defined cell configuration and well stained cell components Besides this we also find epithelial cells with indistinct protoplasm and crowded masses of epithelial cells which are in the process of degeneration or are already transformed into masses

Migratory cells with generally rounded or very rarely lobulated [illegible] occur with inconstant frequency in the vesicles Epithelial cells without [illegible] demarcation appear in the vesicles being pushed closely against the wall or in the interior at a variable distance from the wall Plasma cells well stain[illegible] whose nuclear pigment is arranged in a cart wheel shape are seen in sm[illegible] in the vesicles

Connective tissue was very important in our cases It [illegible] *proliferation everywhere* which gave a beautiful picture with [illegible] It was diffuse and was especially evident in No 4 so that one could [illegible] the lobular arrangement of the vesicles The connection between th[illegible] connective tissue and the changes in the vesicles was also int[illegible] proliferated connective tissue the vesicles were rare and remarkab[illegible] contained very little substance and this was a small amount of [illegible] substance In certain places one could see a well circumscrib[illegible] of connective tissue which contained a number of very small [illegible] interior It seemed remarkable that the connective tissue was diff[illegible] by mononuclear leucocytes This infiltration of round cells mainly [illegible] cytes showed very characteristic findings in all our cases Between [illegible] cells we saw a moderate number of plasma cells whose protoplasm an[illegible] typically stained The infiltration of round cells was mainly locate[illegible] vessels The giant cell formations with numerous peripheral nuclei an[illegible] plasm had been overrun by the proliferating connective tissue in case [illegible]

The vessels showed few changes There were relatively rich vascula[illegible] tions in the junctions of the connective tissue trabeculae which cros[illegible] the [illegible] divide them in lobules A rich new formation was not important [illegible]

Nowhere (I had searched with carbol fuschin methylene blue and Gram [illegible] could I find micro organisms

SUMMARY OF THE HISTOLOGICAL CHANGES

According to the histological findings the main changes in all our cases [illegible] of —

(1) Rich formation of lymphoid follicles
(2) A striking change in the epithelium of the vesicles and their contents
(3) Extensive connective tissue growth
(4) Diffuse round cell infiltration

Looking through the anatomico pathological findings of our four cases we can immediately find similar changes even if they show differences of degree In case 1 the changes of the vesicles are very small they are well filled with colloid substance near normal follicles and well conserved epithelial cells But the vesicles are not as large as those we are accustomed to see in a marked colloid struma In case 4 the vesicles are small atypical with little colloid substance and abnormal contents

The infiltration of round cells in case 1 is only minimal in cases 2 and 3 moderate but in case 4 well marked These round cells consist of mononuclear lymphocytes as well as of plasma cells The lymphoid follicles occur in case 1 only in moderate amount in cases 2 and 3 they are very abundant The prolifera tion of connective tissue is to all intents and purposes not so marked in case 1 but in cases 2 and 3 rather abundant and in case 4 extremely well developed The changes in the parenchyma are only slight in case 1 average in cases 2 and 3 and in case 4 very advanced

So we can assume in all probability that the development of lymphatic elements has been stimulated by a certain factor leading to the formation of lymphoid follicles as well as of lymphoid infiltration But we cannot exclude any migration out of blood vessels In case 1 one can see doubtful inflammatory changes in the parenchyma as well as in the interstitial tissue but in the other three cases one can see a corresponding change indicating a chronic inflammation In the same way as one can see infiltration of lymphocytes and the formation of true small lymphoid follicles especially in chronic infections of mucous membranes one can assume that there are analogous changes in the thyroid But we have to con sider the other possibilities before we talk about the origin of the disease because we know that a similar pathological picture exists in other organs which has been interpreted in different ways by different authors

The disease of Mikulicz is a good example of this I would like to refer later to the close relationship of this disease to ours It is difficult to decide whether the changes in our preparations follow chronic infections or originate from the disease of Mikulicz

Discussion

When we compare the clinical and histological findings of our cases with those of other similar diseases of the thyroid we arrive at some interesting conclusions From a clinical standpoint all my cases are remarkable for their solid consistency and make one think of a struma fibrosa

Struma fibrosa is rare and appears occasionally as a circumscribed some times as a nodular or knoblike tumour especially in old goitres but very rarely as a diffuse thickening of a lobe or of the whole gland The circumscribed form of such a struma is distinguished by numerous solid nodes which vary from the size of a pea to that of an egg Exceptionally these nodes reach a considerable size but together they can form a goitre of large dimensions The diffuse form is often seen as a considerable diminution in size of the organ

Our struma does not show the nodular picture which is characteristic of the struma fibrosa The proliferation of the connective tissue in all our cases showed a certain similarity to the diffuse fibrous struma For the rest there is a difference between them because the struma fibrosa completely lacks the typical parenchy matous changes having a diffuse infiltration of round cells and the formation of lymphoid follicles

We also suspected the possibility of a malignant struma but could not detect thick adhesions to the surroundings or any involvement of the nodes The micro scopical findings and the post operative course gave us a certain indication that it was neither struma fibrosa nor struma maligna

It is true that our cases showed several layers of the high columnar follicular epithelium scattered groups of epithelial cells in the proliferated connective tissue and absence of colloid substance—all arguments in favour of a malignant tumour But I would prefer not to make this diagnosis because nowhere was there any evidence of newly formed atypical epithelial cells Clinically we could not find any suspicious enlargement of lymph nodes or other abnormality in the body which may have been metastases So I have excluded the diagnosis of an epithelial new growth but the possibility of a new formation of the connective tissue lymphoid follicles and lymphocytic collections still remains

However it may easily be lympho sarcoma Because lympho sarcoma has its origin in the lymphoid tissue it still possesses a basic lymphoid structure The metastases may be found chiefly in the neighbouring lymphoid structures The

elements of the tumour are mainly lymphocytes reticulum containing vessels with adjacent epithelial and eosinophil cells But it is completely devoid of the characteristic structure of lymphoid tissue and of follicles which are very imperfect In our cases we find numerous infiltrations of lymphocytes which are very extensive everywhere In other places they form characteristic lymphoid follicles The typical lymphoid follicles with clear germinal centres do not occur as the main part of the tumour in lympho sarcomas So we can unhesitantly interpret our findings as a benign change Other forms of sarcomata are not worthy of consideration True new growths are also excluded by the fact that the residues of the masses disappeared spontaneously after operation

I shall consider the comparison with inflammatory processes of the thyroid gland We divide acute inflammations of the thyroid into interstitial as well as parenchymatous The first can only be described in association with suppuration The second can be observed in non purulent thyroiditis According to de Quervain this is characterised by proliferation deformation and degeneration of epithelial cells changes in and diminution of colloid penetration by multinuclear leucocytes small round cells and greater cellular elements into the vesicles A formation of foreign body giant cells occurs around non absorbable masses of colloid and finally the appearance of connective tissue

The acute thyroiditis starts as a rule suddenly with pyrexia or with rigors In our cases no clinical signs of acute infection are seen There are no signs of acute inflammation in the histological picture because polymorphonuclear leucocytes can not be found

The thyroid in toxic and infectious diseases has been thoroughly studied by Roger and Garnier Torri Kashiwemura and finally by Bayon and de Quervain The material studied came from different diseases for instance acute exanthemata scarlet fever pneumonia puerperal infections osteomyelitis erysipelas purulent peritonitis tuberculosis etc

According to Roger and Garnier who only investigated acute infectious diseases and tuberculosis the interstitial tissue was mostly normal without masses of leucocytes It was only apparently increased by the colloid between the spaces The vessels except for congestion showed little change But they found disseminated arterial and venous changes with thrombus formation The vesicles were filled either by colloid or by desquamated and destroyed cells containing enlarged nuclei and granular protoplasm The epithelial cells of the vesicles were often arranged in several layers The quantity of colloid corresponded with the severity of the disease but was sometimes absent

In tuberculosis they found loss of weight of the thyroid and increase of connective tissue In their septa partially destroyed vesicles were often found The veins showed little change but the arteries showed a certain degree of periarteritis and sometimes endarteritis The parenchyma sometimes showed an increase of the cells of the vesicles and of the cell masses between the vesicles

Torri studied the thyroids of persons dying from acute or chronic infections and found hypersecretion of colloid and proliferation of epithelium He demonstrated further that an active new growth of epithelium occurs in tuberculosis and often an increase of the colloid material

According to Kashiwemura the proliferation of connective tissue is predominant in most cases of lung tuberculosis But this could also be demonstrated in other infectious or toxic diseases In the majority of cases he found colloid in the lymphatic vessels in varying quantities blood vessels and capillaries were often filled with it According to him the presence of multiple small follicles is not characteristic of infectious diseases

According to de Quervain to whom we owe much for his systematic and thorough investigations on this subject the post mortem findings in infectious diseases consist of abnormal colloid formation proliferation and desquamation of the epithelial cells and hyperaemia But bacterial infections never show diapedesis of polynuclear leucocytes

The histological findings are more important than the cultures in deciding whether thyroiditis is bacterial or toxic in origin According to de Quervain it would not be practical to call the changes found in infections and intoxications by the name Toxic thyroiditis Instead he proposed the term toxic reaction because it has nothing to do with a true infection

Sarbach studied the thyroid in infections and intoxications and came to the following conclusions that the acute infections especially scarlet fever can produce marked changes in the thyroid These are essentially similar to those seen in other infectious diseases They are characterised by generalised hyperaemia liquefaction and disappearance of the colloid material with desquamation of the epithelial cells The author demonstrates a destructive effect in the thyroid in chronic alcoholism similar to that seen in infectious diseases In chronic lung tuberculosis he found a remarkable formation of connective tissue in the majority of cases These can initiate a progressive disappearance of the follicles No changes could be found in chronic nephritis uraemia cancer cachexia and sarcomata

If we compare our findings with those of other workers who studied infectious and toxic diseases we must emphasise the fact that in their cases the increase in size was not very characteristic There is another difference from other workers I would like to emphasise the formation of many lymphoid follicles a finding on which no one as far as I am aware has insisted The changes in the follicular epithelium which I could see in our cases are not new and have often been seen before

In none of my cases could I find a history of infectious or toxic disease

In general neither infectious toxic nor malignant changes are seen in our histological findings but probably a particular kind of chronic infection which until now as far as I know has not been described I will then pass on to the discussion of the chronic infections of the thyroid

Rokitansky said that the fibrinous exudates produced by the infection of the thyroid ultimately create a resistant fibrous tissue and that the vesicles disappear slowly

Virchow insisted on the fact that the growth of the goitre was due to an infective process

Wolfler described the chronic infection of the gland parenchyma as follows — Normal vesicles occur very infrequently in the cortical substance of the thyroid undergoing inflammation Only here and there does one see dispersed masses of colloid which were originally contained in the vesicles which have since dis appeared We find a proliferation of the vascular endothelium and oval cells spindle shaped and with tails in the connective tissue We may consider these as elements of the connective tissue

The central part shows here and there between the well conserved vesicles clear spaces as if they were filled by coagulated lymph spaces in which one finds polymorphonuclear giant cells One finds a strange mass in several parts of the vesicles which differs from colloid by the formation of granules

The further from the periphery we search the more do we see connective elements and the less are the epithelial elements in evidence In the part containing fibrous connective tissue which constitutes in different parts the whole of the tissue we find extravasations of blood varying in size We also notice the presence

of giant cells and collections of inflammatory cells around many big vessels which are the focus for the growth of new connective tissue Because the walls of the vessels show inflammatory changes it is not difficult to follow the further changes to laminated connective tissue nodes and fibrous cords

The final result of these inflammatory processes is probably always the trans formation into fibrous nodes cords and calcified centres

Chronic inflammation of the thyroid is quite an exceptional disease this shows why its clinical and histological description in the literature is rather neglected

At the 14th Congress of Surgeons (1896) Riedel reported a particular kind of chronic inflammation of the thyroid and insisted on a remarkable tumour formation similar to the one in the chronic infection of the pancreas Other cases have been reported by different authors and have aroused intense interest The chief feature of the disease consists of a solid as Riedel remarks iron hard tumour which cannot be displaced whose clinical picture speaks rather more for a malignant neoplasm than for an infection At operation the involvement of vessels and nerves was found to be so intimate that the surgeon in question thought it an inoperable tumour and except for a small localised excision did not proceed further with the operation

Cases like this one have been observed recently by Riedel Taillıefer Cordua Courmont and Garlier Silatschek Spemmans Such a struma starts without pain shows a relatively rapid increase in size has an extraordinarily hard consistency and adhesions to the surroundings is never connected to the skin never associated with an invasion of the regional lymph nodes and is not associated with cachexia It is further accompanied by dysphonia dyspnoea and dysphagia and palpitations (without tachycardia exophthalmos or tremor) in varying degrees

Histological examination shows inflammatory and infiltrated fibrous connective tissue Sometimes one finds young almost embryonic connective tissue in several places Very little thyroid tissue is seen In isolated cases one sees a structure similar to that seen in the average colloid struma in the depth of the thyroid The follicular structure is progressively destroyed by young connective tissue and is replaced by solid fibrous tissue *In one case of Riedel we miss the solid con nective tissue There were only agglomerations of round cells Perhaps the processes did not exist long enough in this case to lead to the formation of connective tissue* The vessels generally show a normal structure but sometimes such great endothelial proliferation that their lumen was nearly obstructed by it

The ages of the patients differ The disease mostly affects persons of young or middle age who had previously been in good health The number of men was double that of women During the operation which was generally undertaken for the diagnosis of suspected malignant tumour he found a strong and insepar able attachment of the thyroid to the surroundings so that in the majority of cases partial excision of the growth sufficed

In the further progress there was always an improvement in the symptoms and the tumour diminished in size until it completely disappeared This case of Riedel s can be considered as a benign type of such a particular kind of struma He operated upon such a struma which was the size of a man s fist and had caused dyspnoea which especially during the night induced attacks of suffocation During the operation the author discovered that the tumour was very hard and that it was impossible to separate it from its surroundings Here only a part of the tumour the size of a walnut was excised It showed strumitis chronica micro scopically After the passage of five months fresh attacks of suffocation recurred Another wedge was excised from the isthmus of the thyroid The patient recovered slowly three quarters of a year later the tumour had become smaller and about one and a half years after the operation the patient could work again

Now I would like to study the difference between our strumas and the cases *of Riedel*

All our patients and all Riedel s patients were otherwise in good health and had not suffered previously from illness of an infectious nature The struma of Riedel was *more frequent in men* and *was found between the ages of 20 and 30* years All our cases were women older than 40 years The consistency of the tumour was in our cases mostly remarkably solid but it could not be designated as iron hard

During the operation undertaken for cases of Riedel s Struma the excision was made impossible owing to dense adhesions to great vessels and nerves and only a small part was usually excised But in our cases notwithstanding a difficult penetration of the capsule the resection was however possible as in a benign struma In the histological picture we can see in our cases as well as in Riedel s infiltration of round cells proliferation of connective tissue and regression of the epithelium of vesicles We did not hear directly about formation of lymphoid follicles in Riedel s struma *The progress was almost identical in both cases The palpable residue of the tumour slowly disappeared*

Tuberculosis of the thyroid exists anatomically in two forms The first which is the more frequent form exists as a part of generalised miliary tuberculosis and sometimes affects the whole gland sometimes only parts of the gland The nodules are of different size grey grey white or yellow The second form shows larger tuberculous nodules or centres of caseations This nodular form is rare but important in practice because chronicity may lead to the increase of size of the thyroid

P Bruns describes a case which strikingly resembled a malignant struma but which was clinically a primary thyroid tuberculosis

Our cases show a certain resemblance to tuberculosis but the clinical picture is so different that it does not seem necessary to labour this point

Syphilitic infection of the thyroid is relatively frequent in a fresh infection but is exceptional in the late form Engel Reimers investigated very carefully the part the thyroid plays during the early period of syphilis Generally it is a soft pain less mass which does not incommode the patient and so remains unnoticed Some times one can find a considerable increase in the size of the thyroid

Syphilis of the thyroid excites our interest in two ways First the glandular parenchyma can be completely destroyed by the syphilitic processes and there may be manifestations of thyroid insufficiency *Secondly a malignant growth can be* simulated by a syphilitic struma In this case we have seen a sudden rapid increase in volume of the goitre which can cause difficulty in respiration paralysis of the recurrent laryngeal nerve also pain adhesions to the surrounding structures and an increase in size of the regional lymph nodes The real struma syphilitica consists mostly of gummatous degeneration of the thyroid also of connective tissue infiltrated by round cells without rests of thyroid parenchyma and without other *specific features* Besides one can see a slight temporary struma in early syphilis and more rarely a large goitre

Our cases have every evidence against the diagnosis of early syphilis During the operation we could not ee an appearance of cellular tissue which is characteristic of syphilitic struma *Histologically* we have not *found gummatous* nodules in our cases absence of adhesions to vessels which seems to be character istic of syphilitic struma

Actinomycosis and echinococcus of the thyroid which are very rare were not found in our cases

It is unnecessary to say that we have compared our histological findings with those of the *struma parenchymatosa and vasculosa* but these two lack the characteristic changes shown in our cases

We cannot find at least in all the literature I have studied any other cases similar to ours

If we look for such a change in other organs in which we can show formation of lymphoid follicles with infiltration of lymphocytes with some parenchymatous regression there is above all the disease of Mikulicz

In 1892 von Mikulicz had described a disease characterised by a symmetrical involvement of lacrimal and salivary glands Since then a number of papers have been published but there is no agreement as to the aetiology and the anatomico pathological status of this particular complex of symptoms Because there is a great diversity in the cases described as Mikulicz s disease Max v Bruun proposed to distinguish a number of groups of diseases

The fundamental differences consist in the changes in the blood Without changes in the blood picture there exists a form showing symmetrical swelling of the salivary glands without enlargement of lymph nodes or of the spleen In other cases there are symmetrical swellings of lacrimal and salivary glands some times with infiltration of the skin swelling of lymph nodes and spleen without blood changes In a smaller number of cases there is a severe anaemia with lymphatic pseudo leukaemia and aplasia of the bone marrow

Mikulicz s disease without blood changes or swelling of the lymph nodes or spleen which in a lengthy progress leading to various combinations of painless lacrimal and salivary gland tumours is generally benign The disease seems to be restricted to the affected glands There are no metastases or relapses after operation The swelling regresses by medical treatment and sometimes appears in febrile diseases

The *histological picture of the affected gland shows the formation of lymphoid* follicles and diffuse infiltration of round cells in various ways without a regression of parenchyma In isolated instances the main mass of the tumour consists of small round cells in a rather regular texture They are close together in some parts in others they lie in the meshes of reticular connective tissue Besides the lymphocytic round cells we sometimes see eosinophil cells and plasma cells The lymphocytes and plasma cells sometimes show mitotic figures Giant cells have also been observed they are described as large round formations with two or three or more nuclei Some authors consider them as phagocytic foreign body giant cells but other authors interpret them differently They consider them as dying glandular cells Generally the interstitial tissue is hypertrophic Especially important is the reaction of the pathological tissue towards the glandular substance Sometimes the parenchyma does not appear to be changed at all sometimes it seems very poor in cellular content sometimes one could not even find any nests of glandular substance at all Occasionally tuberculosis of the gland corresponded to the rest of the clinical findings because histologically it had a certain resem blance to tuberculous changes but in our cases a careful investigation has shown that it was not tuberculosis

Symmetrical swelling of the lacrimal and salivary glands or the latter with skin infiltration is sometimes seen with enlarged lymph nodes or the spleen Clinically there is not much difference in the first instance The enlargement of the glands is always progressive and of a solid consistency

The swelling of the lymph nodes occurs in different parts of the body but they only attain a small size The prognosis is good and the swelling subsides whether after treatment or spontaneously after feverish diseases Histologically we see the

same changes as we described previously in the *cases without spleen or lymph* node enlargement The pathological tissue was sometimes interpreted as a prolifera tion of lymphoid tissue sometimes granulation tissue *Giant cells have been* found by many authors The degeneration of the glandular parenchyma seems *to play a passive role* according to one author and another one assumes that this is a primary process because the glandular acini which are little or not at all *infiltrated* by round cells may show a regressive appearance

The disease of Mikulicz with severe anaemia and lymphocytic pseudo *leukaemia or leukaemia* shows on histological examination a change in the affected gland similar to those cases without blood changes

The final conclusions concerning the disease of Mikulicz are as follows the *complex of symptoms* of symmetrical swelling of the salivary and lacrimal glands shows clinically and histologically a typical picture with and without *pseudo leukaemia or even* leukaemic symptoms There is no agreement about the course of the disease

If we now compare the clinical and histological findings of our struma cases *with those of Mikulicz s* disease we find a great similarity In both the glands enlarge forming solid tumours but do not show exceptional signs of inflammation *In both there is* no malignant change but a benign issue is the rule In both conditions there is great infiltration by round cells formation of lymphoid follicles *and regression of the* parenchyma Only in one of our cases has there been giant cell formation which is very frequent in Mikulicz s disease The new formation *of connective* tissue is marked in both affections In the disease of Mikulicz it is rarely observed but there are some changes in this direction

It is regrettable that we lack exact information about the blood picture in our cases Only in two instances did we find the following *picture* —

Haemoglobin		73%
Erythrocytes	3 368 181	
Leucocytes	6 400	
White cells/red cells	526	
Small lymph cells	159	24 31%
Large lymph cells	65	9 94%
Large mononuclears	5	76 00%
Polyneutro	381	58 26%
Poly eosinophils	13	1 99%
Transient forms	28	4 28%
Mast cells	3	0 46%
Normoblasts	1	
Myelocytes	0	

The existence of polychromasia granular degeneration and anisocytosis could be proved

I also found in this patient an increase of lymphocytes but no other note worthy changes which may denote a disease of the blood The other patients blood was tested later in 1911 but showed no existence of a blood disease No swelling of lymph nodes could be shown None of the patients had a tumour of the spleen or infiltration of the skin

We could not find any signs of Basedow s disease in our patients

Kocher and Howeld pointed out that it was characteristic to find in Basedow s disease the typical glandular hyperplasia remarkably frequent lymphocytic centres with or without germinal centres in the struma or in the interlobular connective tissue One sees a perivascular round cell infiltration of lymphocytes in a manner similar to those in certain chronic inflammations

Basedow s disease is considered by some to be analogous to Mikulicz s disease when the histological picture is compared Here our cases are even closer to Mikulicz s disease

Hedinger can show in the struma sarcomatosa rich lymphocytic masses which often contain typical germinal centres These formations usually develop from the tumour edge abutting on the thyroid tissue According to Hedinger similar changes also exist in the benign struma

For the moment we cannot say anything precise about the origin of our strumas but it is probable that a chronic inflammatory process exists Arguments in favour of this view are the diffuse round cell infiltration the regression of the parenchyma and the hyperplasia of the connective tissue

We have no evidence to support the possibility of infectious and toxic influences

Notwithstanding the lack of clarity regarding aetiological factors I have described the disease picture according to the histological findings— lymphomatous changes of the thyroid This opinion presupposes that lymphoid tissue must normally exist in the thyroid from which in certain circumstances formation of lymphoid follicles or diffuse round cell infiltration may occur If this assumption is correct there is no doubt that similar changes can happen in other thyroid diseases such as that of Basedow

CONCLUSION

1 There is a kind of struma which I have described as struma lymphomatosa and which histologically is characterised by an important proliferation of lymphoid elements especially of lymph follicles and by certain parenchymatous and interstitial changes

2 The struma lymphomatosa in an advanced state presents a remarkably solid consistency of the gland which can simulate a malignant tumour

3 A long period of recovery is necessary after operation

4 The progress is good

5 The operation causes the tumour to disappear but one must avoid too extensive a resection To leave a part of the tumour does not do any harm This part will after a time disappear spontaneously

AUTHOR INDEX

SUBJECT INDEX

References to illustrations are shown in bold type

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